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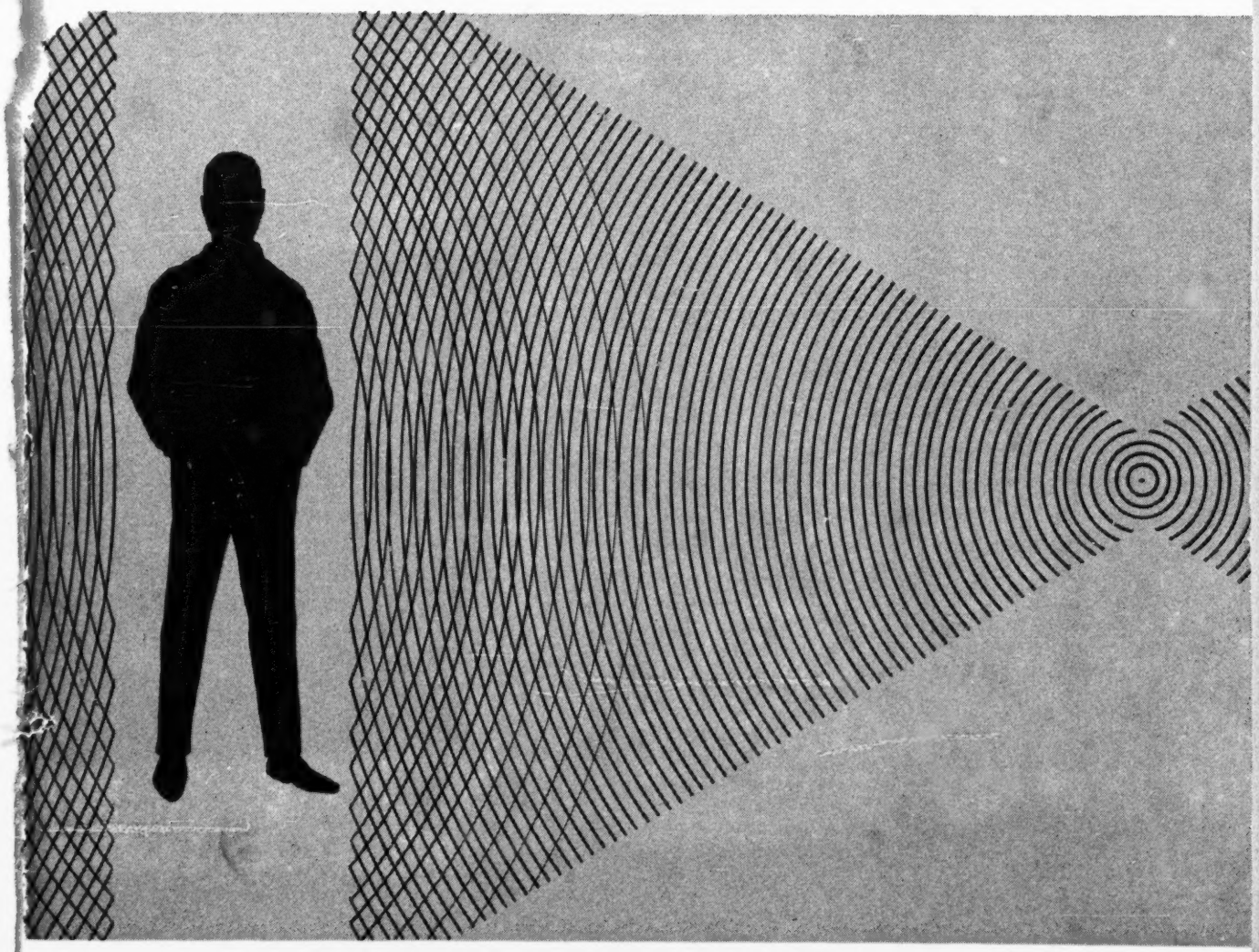
Prepared to assist in developing and strengthening instructional programs for deaf children in California, the bulletin describes the physiology and process of normal hearing and causes, types, and incidence of deafness. The following areas are also considered: preparation of teachers of the deaf and severely hard of hearing; educational evaluation and placement, including testing of intelligence and achievement and regular class placement; and special classes for the deaf, including operation of special day classes, grade placement for attendance accounting, and promotion of home-school cooperation. Curriculum for the deaf is specified in terms of educational goals and methods and tools; construction, furniture and equipment, and supplies for the classroom are detailed. Multiply handicapped children are defined, including the mentally retarded deaf, the blind deaf, the emotionally disturbed deaf, the cerebral palsied deaf, and the aphasic child. In addition, the following public services are described: the State Department of Education, the State School Building Aid for Special Classrooms, the Bureau of Crippled Children Services, and the Division of Vocational Rehabilitation. (GD)

A Guide to the Education of the Deaf in the Public Schools of California



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A Guide to the Education of the Deaf in the Public Schools of California

Prepared by

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Bureau for Physically Exceptional Children

Foreword

Inherent in the American philosophy of equality of opportunity is the equality of opportunity for each child to secure an education to the limit of his potential. This holds true for the handicapped child as well as the normal child.

The effect of deafness upon academic and social achievement necessitates specialized provisions for the education of deaf children.

A Guide to the Education of the Deaf in the Public Schools of California has been prepared to assist administrators, teachers, and other school personnel in making the necessary provisions for deaf children and youth.

Superintendent of Public Instruction

Preface

Over the past decade those responsible for the education of the deaf have become increasingly concerned with two major problems: (1) the ever increasing number of deaf children to be educated in California public Schools; and (2) how good educational programs and services can be provided for all of them.

Deafness is basically a sensory rather than a physical disability. Children who are deaf present a problem in the teaching-learning process because they are denied normal development of language and other communication skills crucial to the normal acquisition of knowledge. How to make instruction meaningful for deaf children is a continuing problem.

Programs for deaf children, particularly public day class programs, have increased substantially during the past decade. Consideration and planning are required if future numbers are to be served, for every sign points to a continuing increase in population in California, with a corresponding increase in the number of deaf and hard-of-hearing children to be educated.

This bulletin, *A Guide to the Education of the Deaf in the Public Schools of California*, will assist in the development and strengthening of instructional programs for deaf children and will help to ensure that all deaf children receive a good education wherever they may reside in the state.

FRANCIS W. DOYLE
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Chief, Bureau for Physically Exceptional Children

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CHAPTER 1

The Physiology and Process of Normal Hearing

The human ear is divided into three sections: the outer ear, the middle ear, and the inner ear. The outer ear receives sounds, the middle ear transmits them, and the inner ear translates them into nerve impulses.

THE OUTER EAR

Sound waves are collected in the concha of the outer ear and are deflected from the inner surface of the tragus into the external auditory canal, which is the chief pathway by which sound is conveyed to the middle ear. In the adult, the general direction of the canal is forward, inward, and downward. The lateral (outer) part of the canal is made of cartilage, and the inner part is made of bone. The angle between the two parts is obtuse and is so formed that the intensity of sound waves is not changed in transmission. The angle of the canal protects the middle ear from the intrusion of foreign bodies, as do the fine hairs in the walls of the canal and the wax or cerumen secreted by the glands of the canal.

The external auditory canal ends at the eardrum or tympanic membrane, which slants outward, downward, and forward. The tympanic membrane functions in two ways: (1) it acts as a protective wall between the external auditory canal and the middle ear or tympanic cavity; and (2) it transmits sound waves to the bones in the tympanic cavity.

THE MIDDLE EAR

The tympanic cavity is an air-filled space that connects laterally with the tympanic membrane and anteriorly with the Eustachian tube, a passage to the throat that equalizes the air pressure in the tympanic cavity with that of the outside air. Posteriorly, the tympanic cavity connects with the mastoid cells. The tympanic cavity is completely separated from the inner ear by a bony wall, which has two "windows" covered with membranes. These are small in comparison with the tympanic membrane, which has an area of 20 to 30 times the area of the membrane of the oval window.

The tympanic cavity is traversed by three small bones known as ossicles. The first bone, the hammer or malleus, adjoins the inner surface of the tympanic membrane. The second, the anvil or incus, connects the hammer and the third ossicle, the stirrup or stapes. The three ossicles articulate in such a way as to permit them to oscillate forward and backward, like levers, transmitting sound vibrations from the tympanic membrane to the membrane on the oval window. The footplate of the stapes fits against the membrane of the oval window, sending vibrations of increased force but diminishing amplitude through the oval window into the perilymph, the liquid in the inner ear.

THE INNER EAR

The inner ear is a liquid-filled cavity containing the semicircular canals, which help to maintain bodily equilibrium, and the cochlea. The cochlea is a shell-shaped structure holding membranous sacs of fluid in which delicate nerve endings are suspended. These tiny nerve fibers join together and emerge at the base of the cochlea to form the auditory nerve. Vibrations of the perilymph stimulate the nerve fibers, creating nerve impulses which travel over the auditory nerve to the auditory centers in the temporal lobes of the brain, where they produce the sensation of sound.

NOTE: The four illustrations following are from "Otologic Diagnosis and the Treatment of Deafness" by D. Myers, et al., *Clinical Symposia*, copyright CIBA Pharmaceutical Company; illustrations by Frank H. Netter, M.D.

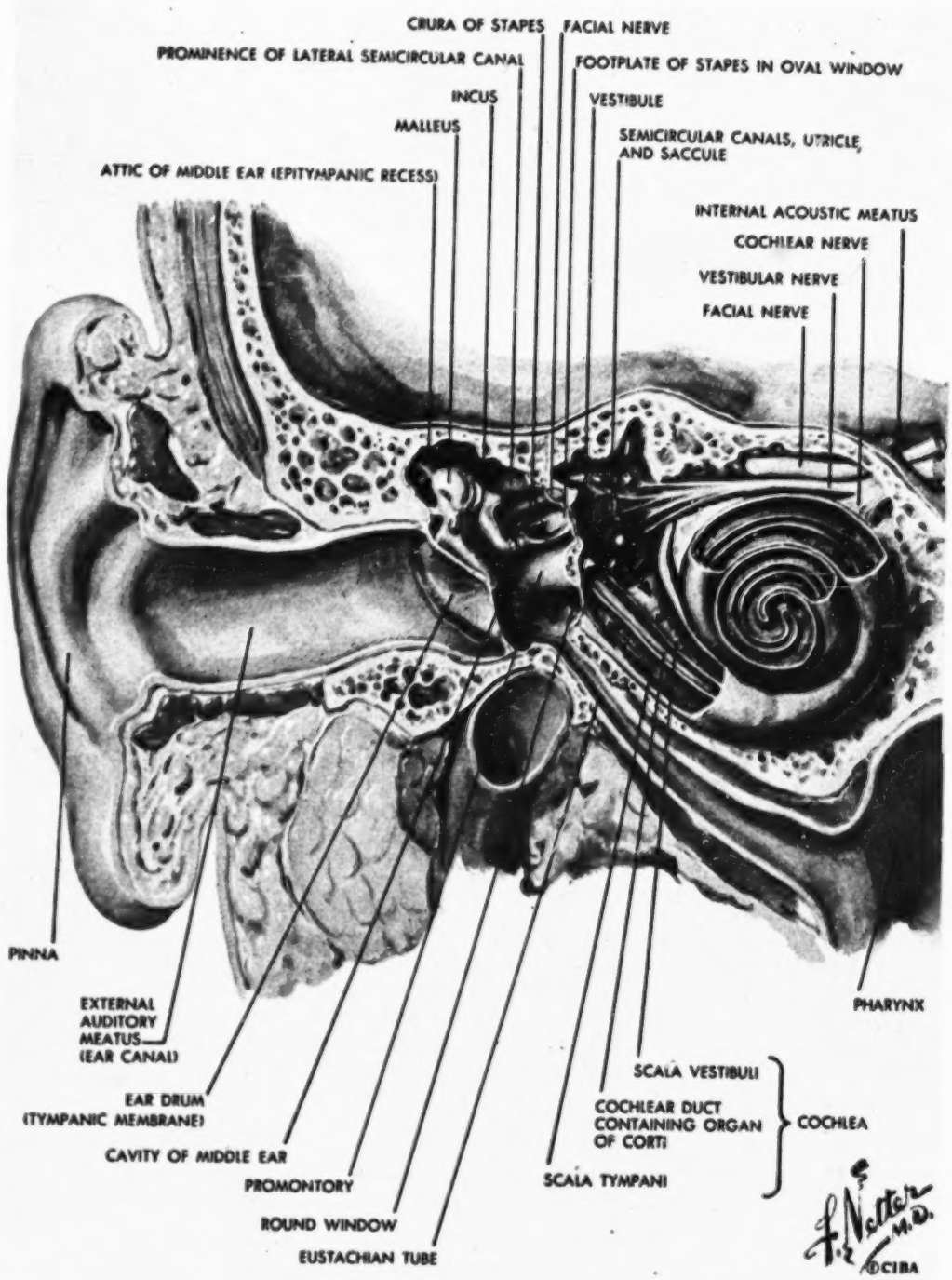
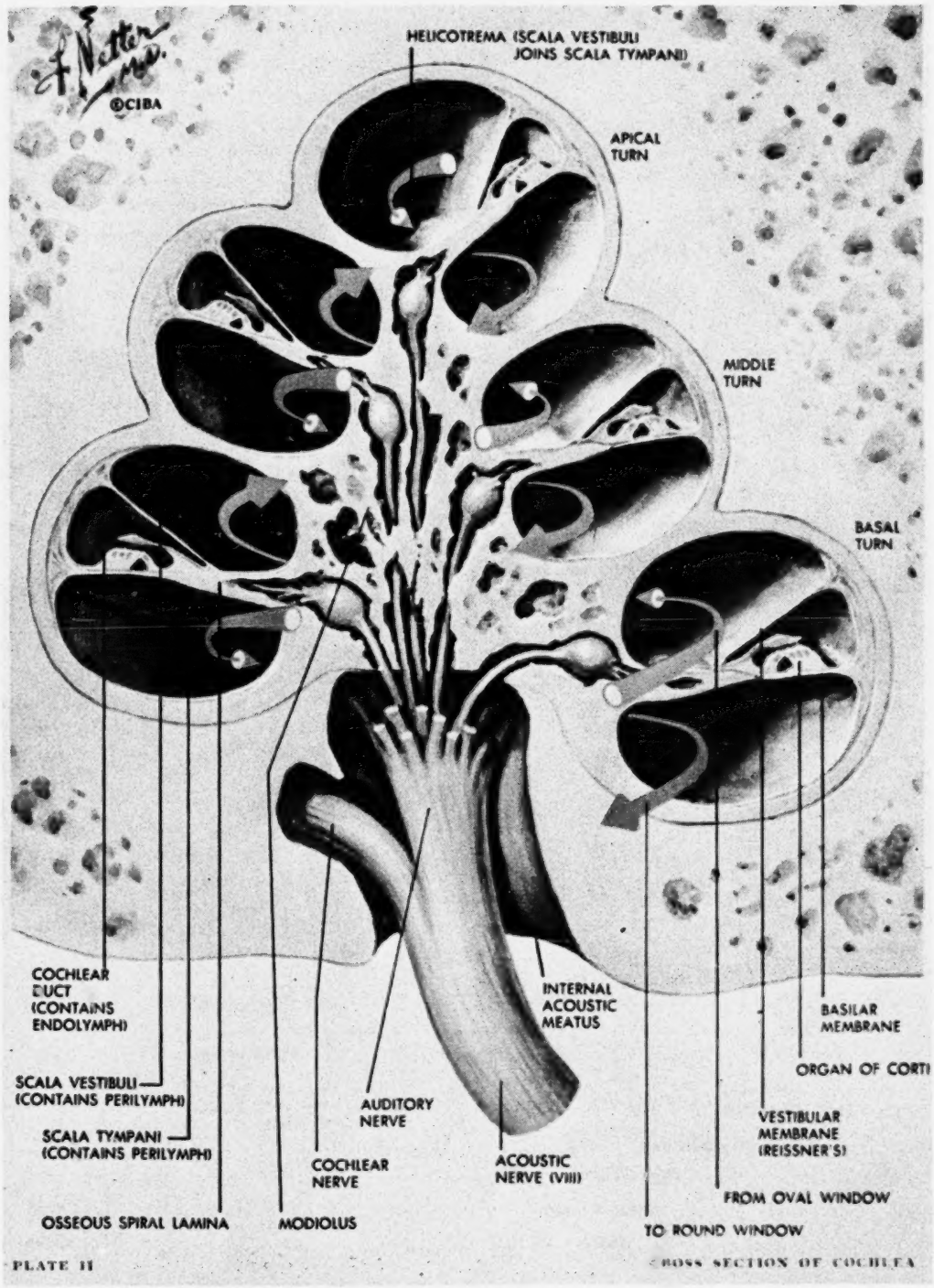


PLATE I

PATHWAY OF SOUND RECEPTION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HELICOTREMA (SCALA VESTIBULI JOINS SCALA TYMPANI)
APICAL TURN
MIDDLE TURN
BASAL TURN
COCHLEAR DUCT (CONTAINS ENDOLYMPH)
SCALA VESTIBULI (CONTAINS PERILYMPH)
SCALA TYMPANI (CONTAINS PERILYMPH)
OSSEOUS SPIRAL LAMINA
MODIOLUS
COCHLEAR NERVE
AUDITORY NERVE
ACOUSTIC NERVE (VIII)
INTERNAL ACOUSTIC MEATUS
BASILAR MEMBRANE
ORGAN OF CORTI
VESTIBULAR MEMBRANE (REISSNER'S)
FROM OVAL WINDOW
TO ROUND WINDOW
PLATE II
CROSS SECTION OF COCHLEA

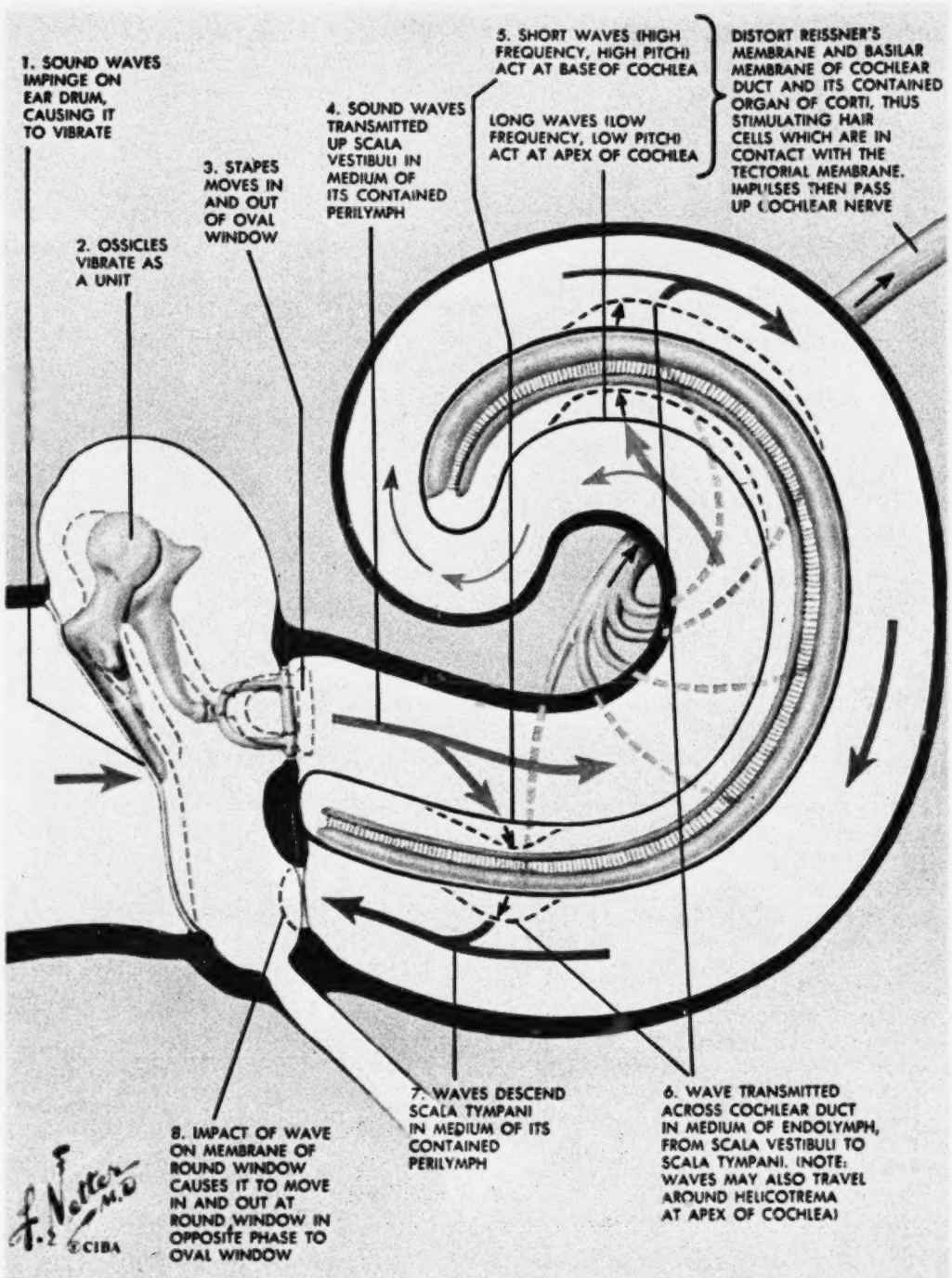
1. SOUND WAVES IMPINGE ON EAR DRUM, CAUSING IT TO VIBRATE
2. OSSICLES VIBRATE AS A UNIT
3. STAPES MOVES IN AND OUT OF OVAL WINDOW
4. SOUND WAVES TRANSMITTED UP SCALA VESTIBULI IN MEDIUM OF ITS CONTAINED PERILYMPH
5. SHORT WAVES (HIGH FREQUENCY, HIGH PITCH) ACT AT BASE OF COCHLEA
LONG WAVES (LOW FREQUENCY, LOW PITCH) ACT AT APEX OF COCHLEA
DISTORT REISSNER'S MEMBRANE AND BASILAR MEMBRANE OF COCHLEAR DUCT AND ITS CONTAINED ORGAN OF CORTI, THUS STIMULATING HAIR CELLS WHICH ARE IN CONTACT WITH THE TECTORIAL MEMBRANE. IMPULSES THEN PASS UP COCHLEAR NERVE
7. WAVES DESCEND SCALA TYMPANI IN MEDIUM OF ITS CONTAINED PERILYMPH
6. WAVE TRANSMITTED ACROSS COCHLEAR DUCT IN MEDIUM OF ENDOLYMPH, FROM SCALA VESTIBULI TO SCALA TYMPANI. (NOTE: WAVES MAY ALSO TRAVEL AROUND HELICOTREMA AT APEX OF COCHLEA)
8. IMPACT OF WAVE ON MEMBRANE OF ROUND WINDOW CAUSES IT TO MOVE IN AND OUT AT ROUND WINDOW IN OPPOSITE PHASE TO OVAL WINDOW
F. Netter M.D.
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PLATE III TRANSMISSION OF VIBRATIONS FROM DRUM THROUGH THE COCHLEA

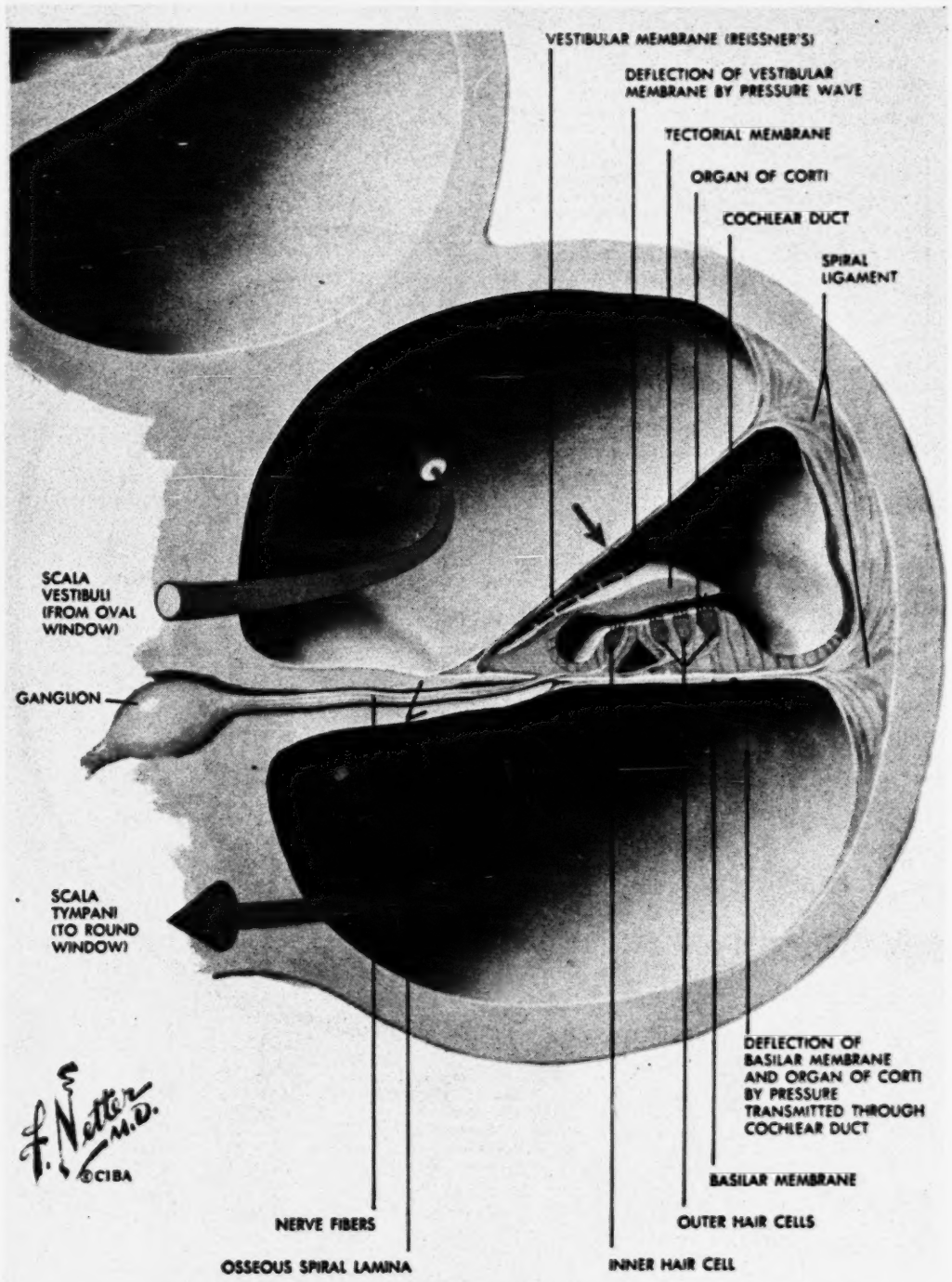

PLATE IV TRANSMISSION OF SOUND ACROSS COCHLEAR DUCT STIMULATING HAIR CELLS

CHAPTER II

Causes, Types, and Incidence of Deafness

Through his senses man is able to perceive, and relate himself to, his environment. The loss of any one of the senses interferes with that relationship and creates problems of an educational, social, and economic nature.

As physical phenomena that arouse a sensation of hearing, sounds are important in man's daily life. A person with normal hearing is constantly bombarded with sounds which help him regulate his activities. The ringing of the alarm clock tells him it is time to get up; the click of the toaster, that his morning toast is ready; the ring of the doorbell, that he has a visitor. But of all the forms of sound, speech is the most important to man, and at no time is it more important than during his infancy and early childhood.

Sounds have no meaning to the child without hearing. Hearing is essential to a child's normal growth and development, for it is through the sense of hearing that communication skills are developed. Normally, there are three language functions: inner, receptive, and expressive. "Inner language" is the ability to structure all sensory input into some organized pattern of experience. "Receptive language" is the ability to understand what is said, either through receptive speech (the ability to understand auditory clues) or speechreading (the ability to understand visual and tactual clues) or reading. "Expressive language" is the ability to communicate with symbols consisting of spoken sounds or words and writing.

Hearing impairment is a barrier that prevents a deaf child from naturally developing an understanding of language and the skills necessary to speak. These skills are developed naturally in a hearing child through an active and passive imitative process, but the deaf child hears no pattern for his vocal efforts. He has no way to integrate the complexities of his environment and successfully to relate himself to his world. Special instruction is necessary for the deaf child if he is to surmount this barrier to communication and to his intellectual and social growth.

Persons planning special education services for deaf or severely hard-of-hearing children must have information concerning the cause, type, and amount of hearing loss sustained by each child and his age at its

onset. Parents, as well as teachers, should have an understanding of the conditions that can result in partial or total loss of hearing. If they understand the causes of deafness, they can provide better health care for their children—care that, especially during the preschool years, may substantially prevent or reduce hearing losses.

CAUSES OF HEARING LOSS

There are many different degrees and types of hearing losses, depending upon the defect and its location. Several terms are used in classifying hearing losses. These include *hereditary*, *acquired (adventitious)*, and *congenital*. An understanding of these terms is essential to providing special education services for deaf children.

A "hereditary" hearing loss results from a defect in the genes at the time of conception. This defect may become apparent before birth, during childhood, or even later in life.

In an "acquired" or "adventitious" hearing loss, the cause lies outside the genes. An acquired or adventitious hearing loss results from damage to hearing that was normal. The damage that causes the hearing loss may occur before birth, during birth, or after birth. A severe case of German measles suffered by the mother during pregnancy may cause the first kind of hearing loss in the child. Injury to the auditory centers sustained through the use of forceps during a difficult delivery is an illustration of the second. A hearing loss resulting from a severe case of scarlet fever in childhood is an example of the last.

"Congenital" is a temporal, not a causal, concept. It means "present at the time of birth." The cause of a congenital hearing loss may be either hereditary or acquired.

TYPES OF HEARING LOSS

Hopkins and Guilder [1] point out that deafness consists of many types of hearing loss:

> Deafness is not a distinct clinical or pathological entity. It is the end result of many different pathological conditions, arising from many different causes and occurring at many different points in the auditory apparatus. All these conditions may cause deafness of varied degree and character. On the other hand, the deafness may be the result of malformation or defective development of some part or parts of this very complicated apparatus. Therefore, we must think not of deafness in general, but of the different types of deafness.

Five general types of hearing impairment have been identified.[2] Basic information concerning these five types is essential in providing an appropriate program of special instruction as well as in determining the effectiveness of a hearing aid.

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[1] Louise A. Hopkins and Ruth P. Guilder, *Clarke School Studies—Concerning the Heredity of Deafness*. Monograph I, Clarke School Studies. Northampton, Mass.: The Clarke School for the Deaf, 1949, p. 10.

[2] The following discussion of five categories of hearing impairment and the conditions causing them has been adapted from Edna Simon Levine, *The Psychology of Deafness—Techniques of Appraisal for Rehabilitation*. New York: Columbia University Press, 1960, pp. 315–16.

CONDUCTIVE HEARING IMPAIRMENT

One type of hearing loss is conductive hearing impairment. In this type, the hearing loss is caused by some condition in the outer ear or middle ear that partially or totally obstructs the passage of sound vibrations to the inner ear. In conductive hearing impairment the vital centers of the hearing system or function presumably are intact, and if sound vibrations can be sent to the inner ear, the act of hearing can be completed. Of course, the acuteness of hearing with conductive loss will reflect the efficiency with which sound impulses are delivered through or around the obstructed area to the inner ear.

Common causes of conductive hearing loss are:

- Inflammation of the middle ear (*otitis media*)
- Infection and blocking of the Eustachian tubes, commonly caused by adenoid tissue
- Damaged (perforated, scarred) eardrum
- Obstruction of the outer ear canal, commonly caused by wax
- Otosclerosis (a bony growth), which also involves the inner ear in severe cases and is associated with hereditary factors

PERCEPTIVE HEARING IMPAIRMENT

A second type of hearing difficulty is perceptive hearing impairment. Perceptive hearing impairment may be classified as either hereditary or acquired deafness, depending upon the cause. This type results from an impairment or degeneration of the sensory structures located in the inner ear. The ability to hear high frequency sounds generally is severely affected in this type of hearing loss. However, the degeneration often involves the entire sensory structure, thus resulting in difficulty in hearing all frequencies found in human speech.

Common causes of perceptive hearing loss acquired prenatally are:

- Certain diseases, such as German measles (rubella), mumps, and influenza, suffered by the mother during pregnancy
- Drugs, such as quinine, taken by the mother during pregnancy
- Rh factor
- Pathological conditions of the fetus, such as *erythroblastosis fetalis*
- Developmental anomalies
- Maternal syphilis

Common causes of perceptive hearing loss acquired at birth are:

- Anoxia (insufficiency of oxygen)
- Traumatic injuries
- Prematurity

Common causes of perceptive hearing loss acquired after birth are:

- Infectious diseases, such as meningitis, mumps, measles, whooping cough, scarlet fever

- Hyperpyrexia (exceptionally high fever), especially in childhood
- Various drugs, such as dihydrostreptomycin and quinine
- Noise and blast
- Dropsy of some of the tissues of the inner ear, commonly referred to as Ménière's disease
- Avitaminosis (lack of vitamins), arteriosclerosis (hardening of the arteries), allergy

Medical attention can be of considerable assistance in forestalling many of these conditions or in keeping their severity under control. However, medical treatment can do very little, if anything, for perceptive hearing damage once it has been sustained. Nerve structures, once destroyed, cannot be restored. Therefore, amplified sound provided by hearing aids is of relatively little, if any, value in profound perceptive deafness.

MIXED DEAFNESS

A number of the foregoing conditions, if severe, can cause a combination of perceptive and conductive hearing impairment known as mixed deafness.

CENTRAL DEAFNESS

A fourth type of hearing loss is central deafness. In this impairment the difficulty is located in the central nervous system. As in the case of perceptive hearing loss, medical treatment can do very little for central hearing problems.

Common causes of central deafness are:

- Acoustic tumors
- Certain types of brain damage, caused by such conditions as birth injury, cerebral hemorrhage, encephalitis, brain lesions, degeneration of circulatory structures, multiple sclerosis, syphilis, or abscesses affecting the pathways from the auditory nerve through the brain to the outer temporal lobe
- Developmental anomalies affecting these areas

PSYCHOGENIC DEAFNESS

Psychogenic hearing difficulty is a fifth type of hearing problem. Psychogenic and functional deafness and malingering are personality disorders with or without organic impairment of the auditory mechanism. Usually they are associated with neurosis and conscious or subconscious secondary gains phenomena.

Davis [3] records that observations made during World War II would indicate that psychological factors may be responsible for more deafness

[3] *Hearing and Deafness* (Revised edition). Edited by Hallowell Davis and S. Richard Silverman. New York: Holt, Rinehart and Winston, Inc., 1960, p. 119.

than usually has been recognized. Lesser [4] observes that transitory psychogenic difficulties may involve children more frequently than commonly realized.

Hearing aids and medical attention other than psychiatric generally are not helpful in this type of deafness.

DEFINITION OF THE DEAF

The hearing loss of children varies widely. One child may have a very slight loss; another may have a profound or total loss. A great many children have degrees of hearing loss between these two extremes. Those classifying hearing-impaired children for purposes of instruction should know how the deaf and the hard of hearing are defined. There is as yet no universally accepted definition.[5] There are, however, significant statements regarding the deaf that merit study by those concerned with the education of the deaf.

One definition that continues to gain acceptance was proposed in 1937 by the Committee on Nomenclature of the Conference of Executives of American Schools for the Deaf:

> 1. The deaf—those in whom the sense of hearing is nonfunctional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of the loss of hearing.
>   a. the congenitally deaf—those born deaf, and
>   b. the adventitiously deaf—those born with normal hearing but in whom the sense of hearing became nonfunctional later through injury or illness.
> 2. The hard of hearing—those in whom the sense of hearing, although defective, is functional with or without the hearing aid.[6]

The definition of the Committee on Nomenclature is helpful in distinguishing between the deaf and the hard of hearing. The definition does not, however, define the deaf according to their amount of hearing loss like the following definition:

> The deaf, for the purposes of this article, shall consist of those children (1) whose hearing losses range from 70 to 75 decibels in the speech range to inability to distinguish more than one or two frequencies at the highest measurable level of intensity in the better ear resulting in not being able to understand and acquire speech and language through the sense of hearing even when sound amplification is provided, (2) whose hearing losses average 50 or more decibels in the speech range in the better ear and who, having had a sustained loss from very early childhood or babyhood, do not learn language and speech through the unaided ear, and (3) those diagnosed by a hearing specialist as being deaf.[7]

Parents and school people sometimes state that a child is hard of hearing when from the standpoint of instructional needs he is deaf. Conversely,

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[4] Arthur J. Lesser, *Services for the Child Who Is Hard of Hearing—A Guide to the Development of Programs*. Children's Bureau Publication No. 334. Washington, D.C.: Federal Security Agency, 1950, pp. 3–4.

[5] *Proceedings of the Conference on the Collection of Statistics of Severe Hearing Impairment and Deafness in the United States*. Public Health Publication No. 1227. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1964, p. 2.

[6] *American Annals of the Deaf*, Vol. XXXVIII. Washington, D.C.: Gallaudet College, 1938.

[7] California Administrative Code, Title 5, Education, Section 1320(a).

they sometimes describe a child as deaf when he is hard of hearing. The preceding definition, which emphasizes, in addition to objective measurements of hearing loss, the ability to understand and acquire speech and language through hearing, provides a comprehensive guide for those deciding whether a child needs an instructional program for the deaf or one for the hard of hearing. If a child's hearing ability, even with the use of a hearing aid and auditory training, will not enable him to acquire speech and language through his hearing, he is educationally, if not totally, deaf. If, on the other hand, a child's hearing ability, with the assistance of a hearing aid and with or without auditory training, will enable him to understand and acquire speech and language through his hearing, he is hard of hearing but not deaf.

Sometimes a deaf child has normal hearing for the first few years of life. During this period he learns to talk, acquires a vocabulary, and achieves the language development of a normal child. Then something causes loss of all or part of his hearing. If he loses most or all of his hearing, he is a deaf child insofar as his functional ability to hear is concerned. He differs substantially, however, from the child who was born deaf or the child who lost his hearing during infancy, and his instructional needs are much different.

The child who loses his hearing in late childhood or early adolescence already has speech, vocabulary, and language facility. He understands spoken language and remains capable of using it in his daily living and learning activities. Such a child is, however, a deaf child—not a hard-of-hearing child, as he is sometimes called. His problems and needs are substantially different from those of the hard-of-hearing child. He needs special assistance in retaining his speech skills, but the assistance he needs differs considerably from that needed by the child born deaf.

The term *deaf*, as used in this publication, includes the severely hard of hearing and those with greater hearing loss. The term, as used, refers to pupils with hearing loss so severe as to require placement in special day classes or schools for their special education. The term excludes those pupils whose lesser hearing loss makes their education possible in remedial classes [8] or integrated programs of instruction.[9]

INCIDENCE OF THE DEAF IN PUBLIC SCHOOLS

The current ratio of enrollment is ten deaf minors per 10,000 of the total California school enrollment—kindergarten and grades one through twelve, inclusive. When appropriate programs have been developed to include school-age deaf minors enrolled in private programs, mentally retarded deaf in state hospitals, mentally retarded and multiply handicapped deaf in private hospitals and private residential schools, mentally

[8] California Education Code, Section 6816.
[9] *Ibid.*, Section 18060.2.

retarded deaf not enrolled in any program and multiply handicapped deaf minors not enrolled in any program, the ratio of enrollment is expected to increase to 12 or more deaf minors per 10,000.

CHAPTER III

Preparation of Teachers of the Deaf and Severely Hard of Hearing

The impact of deafness on the development of speech and language, the teaching-learning process, and the acquisition of subject matter content necessitate a highly technical preparation program for the teachers of the deaf and severely hard of hearing if teachers are to be successful in the classroom management of such pupils.

Teachers of the deaf and severely hard of hearing are required to take specialized professional preparation designed to enable them to teach (1) special communication skills (e.g., speech reading, speech, hearing, and language for the deaf); and (2) the standard subjects required for all pupils enrolled in the regular classes of the public schools of California.

The following California Administrative Code sections set forth the required preparation for teachers of deaf and severely hard-of-hearing minors:

REQUIRED PREPARATION FOR A TEACHER OF EXCEPTIONAL CHILDREN

GROUP 5. SPECIALIZED PREPARATION WHICH MAY BE SUBSTITUTED FOR A MINOR (APPLICABLE TO STANDARD TEACHING CREDENTIALS WITH A SPECIALIZATION IN ELEMENTARY TEACHING, SECONDARY TEACHING, OR JUNIOR COLLEGE TEACHING)[1]

Article 2. Specialized Preparation to Serve as a Teacher of Exceptional Children

6260. General. Specialized preparation to serve as a teacher of exceptional children may be substituted for a minor only when the major is in an academic subject matter area.[2] Specialized preparation to serve as a teacher of exceptional children in one of the areas specified in this article consists of the preparation herein specified for the respective area.

6261. Area of the Deaf and Severely Hard of Hearing—Preparation. Specialized preparation in the area of the deaf and severely hard of hearing shall consist of all of the requirements in (a) and (b).

[1] Adapted from California Administrative Code, Title 5, Education.
[2] Education Code Section 13188 defines "academic subject matter area" as referring exclusively to the natural sciences, the social sciences (other than education), the humanities, mathematics, and the fine arts.

(a) *Course Work.* Thirty semester hours of course work, including each of the following:

(1) Introduction to exceptional children.
(2) Principles of counseling exceptional children and their parents.
(3) Language and speech development and disorders.
(4) Anatomy, physiology, and pathology of the speech and hearing mechanism; physics of sound, principles of sound amplification, and audiology.
(5) Speech reading; auditory training; priciples and methods of teaching communication skills to the deaf and hard of hearing, including language and speech; and elementary school subjects.
(6) Supervised observation and participation in the education of the deaf and hard of hearing.

(b) *Student Teaching.* Ninety clock hours of actual teaching in the classroom performed as part of a course in student teaching in the area of the deaf and severely hard of hearing or, in lieu thereof, one year of successful full-time teaching of such students in a public school or private school of equivalent status. This ninety clock hours of student teaching shall be accepted toward meeting the student teaching requirements . . . as appropriate (for the standard teaching credential).

(c) *Applicants Who Are Deaf.* In lieu of the course work listed in subparagraphs (1) through (5) of subsection (a), an applicant who is deaf may substitute preparation which the Department of Education deems appropriate.

(d) *Substitute for Other Requirements.* Substitution may be made as follows:

(1) Six of the semester hours required in (a) may be substituted for 6 of the semester hours specified in Section 6130(f)(2)(B) (professional preparation for standard teaching credential with specialization in elementary teaching).

(2) Four of the semester hours required in (a) may be substituted for 4 of the semester hours specified in Section 6160(f)(2)(B) (professional preparation for standard teaching credential with specialization in secondary teaching).

6266. Requirements in the Area of Specialization for a Credential Issued upon Partial Fulfillment of Requirements. The specialized preparation that an applicant for a credential to teach exceptional children issued under Section 6150 or Section 6190 or Section 6230 or Section 6288 shall have completed in his respective area of specialization as partial fulfillment of requirements is:

(a) *Deaf and Severely Hard of Hearing.* Fifteen semester hours to include the preparation specified in subparagraph (5) of Section 6261(a).

Only teachers who have taken such preparation, evidenced by the Credential to Teach in the Area of the Deaf and Severely Hard of Hearing, may be assigned to instruct deaf and severely hard-of-hearing minors (1) in special day classes on a self-contained basis; (2) in special day classes on a cooperative basis; (3) in integrated programs of instruction; (4) as physically handicapped minors enrolled in regular classes receiving supplemental teaching; and (5) in a preschool program receiving individual instruction.

The following teacher preparation programs in the area of the deaf are accredited by the State Board of Education:

CALIFORNIA ACCREDITED PROGRAMS

Teacher Preparation in the Area of the Deaf and Severely Hard of Hearing

Institution	Type of Program
California State College at Los Angeles 5151 State College Drive Los Angeles 90032 (213) 225-1631	Offers teacher training only. Requests for literature should be sent to Harry V. Wall, Chairman, Department of Special Education.
San Francisco State College 1600 Holloway Avenue San Francisco 94132 (415) 584-2300	Offers teacher training only. Requests for literature should be sent to Joseph S. Lerner, Chairman, Special Education, Teacher Training.
John Tracy Clinic 806 West Adams Boulevard Los Angeles 90007 (213) 748-5481	The Clinic, located near the campus of the University of Southern California, is devoted to the education of preschool deaf and hard-of-hearing children and their parents. The Clinic, jointly with the School of Education of the University of Southern California, offers teacher training in the area of the deaf. Requests for literature concerning its preschool program or teacher training should be sent to Edgar L. Lowell, Administrator.

CHAPTER IV

Educational Evaluation and Placement

The teacher of the hard of hearing, the teacher of the deaf, the school nurse, and the school audiometrist are not trained or licensed to diagnose deafness, but they can recognize it. School authorities may, however, use the results of hearing testing conducted by the public schools as a basis for determining a child's need for special education.[1] A pupil discovered to have a hearing loss should be given a thorough physical examination by a physician and be diagnosed as deaf before the pupil is enrolled in a special class or school for the deaf. If the examination reveals that the child's hearing impairment can be corrected, the physician's recommendations should be followed. If the physical examination reveals other physical defects that can be corrected, the required measures should be recommended and taken, if possible.

To ensure proper placement of a child in a program for the deaf, an admissions and dismissals committee should be organized by the entity providing the service. The admissions committee may be drawn from the following professional personnel:

- Local director of special education
- Teachers of the deaf
- Otologists
- Psychologists
- Principals or other school administrators
- Audiologists or speech therapists
- School nurses

Information regarding the cause, type, and degree of deafness, the child's age at its onset, and the child's ability should be available to the special teacher and other professional staff for use in planning the special education services needed by the child. An individual case study and complete records should be maintained for each deaf child enrolled in the program. These should be readily available to the special teacher for frequent reference and use, as well as to the committee on admissions and dismissals for any possible action. Attention should be given to such information as: (1) general information; (2) developmental and personal history; (3) medical and visual examinations; (4) otological and

[1] California Education Code, Section 11903.

audiological report; (5) psychological examination; (6) educational history and cumulative record; and (7) school progress notes.

A full evaluation and study of a deaf child would include the following kinds of information:

1. Family information
2. Birth history
3. Legal information
4. Medical history
5. Genetic development
6. Emotional adjustment evaluation
7. Auditory behavior
8. Language behavior
9. Educational history
10. Testing information and results
    a. Sensory
    b. Intelligence
    c. Language
    d. Motor
    e. Emotional
    f. Social maturity
    g. Educational achievement
11. Conclusions
12. Recommendations

An example of such an evaluation and study follows.

SAMPLE CASE HISTORY

NAME: Jane Doe
ADDRESS: 1234 Blank Street
Anywhere, California
FATHER'S NAME: John
FATHER'S AGE: 35
MOTHER'S NAME: June
MOTHER'S AGE: 31
SCHOOL DISTRICT: Anywhere Unified School District

DATE OF EXAMINATION: 11-1-66
DATE OF BIRTH: 10-17-56
AGE: 10
FATHER'S OCCUPATION: Merchant (jewelry)
MOTHER'S OCCUPATION: Housewife
SIBLINGS: Brother, John, 12
Sister, Julie, 3
TELEPHONE: 444-4444

NATURE OF THE PROBLEM: Jane's mother brought her to the district Special Education office for evaluation for school placement. The family has recently moved into the district from out of state. The referral for Jane was made by the principal of Anywhere Elementary School No. 1 when the children of this family were taken there for school enrollment.

1. Birth History

Jane is the second of three children in the family. Pregnancy was full term with what was considered normal labor. There were no complications preceding, during, or immediately after delivery. She weighed 7 lb., 3½ oz. at birth and was 19 in. long.

II. Legal information

Jane's mother died when Jane was ten months old. When Jane was three years old, her father remarried and the stepmother has raised Jane since that time. Custody remains with the natural father and stepmother.

Jane was born in Somewhere, Texas. The family moved to Anywhere, California, and are residents of the state. Residence at the above address is within the Anywhere Unified School District.

III. Medical History

Jane had a respiratory infection at the age of four months. At the age of twelve months, she was hospitalized with a severe case of viral encephalitis accompanied by high fevers. In 1962 Jane's tonsils were removed. There is no further history of illnesses, diseases, accidents, or surgery. Innoculations are up to date. The family belongs to the B-Safe Medical Insurance Group, but no doctor has been selected by the family as yet. There is no history of deafness in the family on either the father's or the mother's side. Jane was a quiet baby who did not babble. The stepmother reports that Jane's father does not recall Jane's responding to sounds as an infant. It is believed that deafness was congenital but the actual cause has not been determined.

IV. Genetic Development

Jane sat alone at the age of six months and was walking alone by the age of one and one-half. She was toilet-trained by the age of two and could completely dress herself by the age of three years. She is right-handed. She has no apparent balance or coordination problems.

V. Emotional Adjustment

At first Jane is a little shy in response to strangers, but she warms up and becomes friendly within a short time. She is quite alert to movement, vibrations, and sensations. The stepmother feels that Jane is about normal in her daily activities. Her behavior is consistent from day to day, and she is easily managed at home. Jane is reported to make friends quickly and has a wide circle of friends. She seems to relate well to adults. She is reported to have a particular attachment to her brother. She eats and sleeps well; cries when she is hurt or sad; laughs spontaneously when confronted with a humorous picture or situation. Jane can amuse herself when alone but definitely prefers the company of others.

Jane uses her speech to make her wants known and uses her speechreading ability to orient herself to the verbal situation she faces. Parental attitudes toward the child seem good, and parents have a healthy attitude about her impaired hearing. A paternal grandmother is particularly close to the family, since she raised Jane during the time Mr. Doe was widowed.

Jane does not seem spoiled. The parents and grandmother have apparently done a good job, treating her with care. They usually discipline Jane by sending her to her room or requiring her to do extra chores about the house.

The rest of the family sometimes become annoyed with Jane because she is constantly "demanding" explanations of things, places, and events which occur daily. The stepmother considers Jane a very curious child.

VI. Auditory Behavior

According to the stepmother, Jane responds to sounds consistently. She is able to hear loud sounds and shows no fear of noises. She uses her residual hearing well.

VII. Language Behavior

According to the parents Jane was a quiet baby and did not do much babbling. Jane can say simple sentences, and she imitates words fairly well. Her speech has a good quality, with a few omissions of sounds normally heard at the higher

frequencies. She mispronounces some words. She uses a few gestures and communicates with facial expressions to some degree.

VIII. Educational History

With the financial assistance of public health services, the paternal grandmother enrolled in the John Tracy correspondence course for parents of deaf children and continued with it for the two years Jane lived with her.

At the age of three, Jane was enrolled in a private school in Nowhere, Texas, a suburb of Somewhere, Texas. At the age of six, Jane was transferred to the public school program for the deaf and hard of hearing in her home town. She has remained there until the present time. Before moving to this state, the parents inquired of the California State Department of Education to assure themselves of settling in a community where a program for Jane would be available.

IX. Testing Information

A. Sensory. The following responses to pure tones were obtained with an audiometer:

	250	500	1000	2000	4000	PTA
R	50	55	70	80	85	67
L	45	50	75	90	----	73

Jane owns a hearing aid with a Y-cord to both ears. The audiologist stated her speech and voice quality were fair to good.

B. Intelligence. The Wechsler Intelligence Scale for Children was administered with the following results:

Subtest	Raw score	Scale score
Picture completion	13	14
Picture arrangement	30	12
Block design	10	7
Object assembly	21	9
Coding	37	9
Total		51
Performance IQ		101

On the Draw-A-Man Intelligence Test, Jane scored 26 points, which is equal to the mental age of 9.6. This gave her an IQ of 81, which seems to reflect more upon her artistic ability (which is somewhat weak) than intellectual ability. On other paper and pencil drawing tests, she scored well.

C. Language. Jane's inner language seems intact. Her high score on the Utley Lipreading Test rated her as a good to excellent speechreader. The test was done with and without voice, and Jane did well both ways, with a slight edge to the test with voice. She uses speech as an expressive language and can read and write fairly well.

D. Motor. Jane is right-handed in everything she does. She tends to use her right foot first when kicking or stepping on something. On the Health and Rail-walking Test, she scored very well, showing good motor skills.

E. Emotional. Jane seems fairly well adjusted emotionally. She relates well to other people and seems to be adaptable. She seems to have no phobias, compulsions, obsessions, fears, or aggression.

F. Social Maturity. On the Vineland Social Maturity Scale, Jane scored 86 points, giving her a social age of 13.2 and a social quotient of 114. This indicates a high level of adjustment and suggests that she is getting along rather well, considering her handicap. Good peer and secondary group relationships are noted.

G. Educational Achievement. The Stanford Achievement Test, Intermediate Form RR, was administered with the following results:

Subtest	Score (grade level)
Vocabulary	3.5
Paragraph comprehension	4.1
Arithmetic comprehension	6.0
Arithmetic reasoning	3.0
Average	3.9

X. Conclusions

1. Jane has a hearing loss between moderate and severe. She uses her residual hearing well.
2. She is slightly above average in intelligence. She is doing very well in school and might be predicted to continue as a successful pupil.
3. Jane has no apparent motor, emotional, or social maturity problem. She should easily adjust to new situations. Her home situation appears to be good.
4. Jane's language skills are reasonably good. Her inner language is intact, and she has facility in both impressive and expressive language.
5. Jane is an attractive, cooperative girl. She is lean and athletic in physical appearance.

XI. Recommendations

1. Jane should be placed in a special day class for the deaf which is appropriate for her age, ability, and rate of progress. Although her loss of hearing is sizable, she may be able to successfully integrate into some regular classes.
2. A restudy of Jane's case should be scheduled for the spring during the third period staffing session.
3. Continuous speech training and auditory training should continue to be part of her total educational program. Amplification is required.

INTELLIGENCE TESTING OF THE DEAF

Although studies in countries throughout the world are almost unanimous in showing that the IQ as obtained by current testing methods is more a measure of environmental advantage or disadvantage than of fixed endowment,[2] information concerning the general intelligence of deaf pupils is essential to the planning of their education. Intelligence tests which rely upon verbal and language growth in measuring intelligence are not suitable for use with young deaf pupils, since they have little or no facility with language. Selected intelligence tests requiring very little language can be used. The selected tests, or portions of tests, generally used are called nonlanguage, nonverbal, or performance tests. In the administration of these tests, care is taken to present to the child a task that requires not only a nonverbal response but also nonverbal instructions.

Ideally, the psychologist testing the deaf should be prepared in as many areas relating to the deaf and deafness as possible. Such areas

[2] Edna S. Levine, "Psychological Testing and Education: Some Current Concepts." *Report of the Proceedings of the International Congress on Education of the Deaf and of the 41st Meeting of the Convention of American Instructors of the Deaf.* Senate Document No. 106. 88th Congress, 2d Session. Washington, D.C.: U.S. Government Printing Office, 1964, pp. 293–301.

should include teacher training and teaching experience in the area of the deaf, internship in schools for the deaf, work with parents of deaf children, and an understanding of problems facing the deaf child.

The examination itself, as well as the pre- and post-examination procedures, reveals many valuable learning clues, which should be made known to the teacher who works with the child. Information derived from a psychological evaluation of the deaf child should disclose to those planning for the child's education the situation as it exists and should also be used as a tool in the evaluation of the curriculum.

The following tests have been used with deaf pupils:

- Performance scales
  1. Arthur Point Scales. Ages about six years and over.
  2. Cornell-Coxe Performance Ability Scale. Ages four and one-half through sixteen years.
  3. Drever-Collins Performance Scale. Constructed in Great Britain and standardized on English school-age deaf children.
  4. Leiter International Performance Scale. Test consists of 68 nonlanguage tasks, and testing materials are arranged in three "age trays": Tray 1, ages two through seven; Tray 2, ages eight through twelve; and Tray 3, ages fourteen through eighteen.
  5. Nebraska Test of Learning Ability, Marshall S. Hiskey. Standardized on deaf children from four through ten years of age.
  6. Ontario School Ability Examination, Harry Amoss. Standardized on deaf pupils, aged five through seventeen, in the Ontario (Canada) School for the Deaf.
  7. Pintner-Paterson Performance Scale. Ages four through sixteen years. This is the famous ancestor of performance scales, specifically designed with the deaf in mind.
  8. Wechsler Intelligence Scale for Children: Performance Scale. Ages five through fifteen years.

- Nonlanguage tests
  1. Pintner General Ability Tests: Nonlanguage Series. This nonlanguage group test series was specifically designed for the deaf and is widely known in the field. The complete series ranges from preschool to high school and college levels.
  2. Chicago Nonverbal Examination, Andrew W. Brown. This is another group test designed with deaf children in mind and standardized for both verbal and pantomime directions for ages of about eight through fourteen years. The subtests included are: digit-symbol (easy); incongruent element in a series; cube-construction counting; relation of parts to whole; similarities; picture reconstruction; picture sequences; pictorial absurdities; association of parts; digit-symbol (difficult).

3. Goodenough Draw-A-Man Test. The simple task involved in this test—the drawing of a man—is a popular supplement to a more comprehensive examination of deaf children in the age range of three and one-half through twelve years. The directions are easily given in pantomime.

ACHIEVEMENT TESTING OF THE DEAF

Deaf pupils attending school are educationally retarded in comparison with hearing pupils of the same age. Their rate of progress is slower than that of hearing pupils.

Deaf children are usually found to be retarded by two, three, or more years in educational, social, emotional, and behavioral achievement. Their performance tends to follow a consistent pattern. In specific skills—such as punctuation, capitalization, spelling, and arithmetic—deaf children tend to approach the normal level of achievement. In abstract skills—such as structuring of language, comprehension of words and paragraphs, or solving arithmetic problems—deaf children are considerably below the normal level and rate of achievement. This appears to be a direct consequence of deaf children's retardation in the language skills.

The rate of progress of deaf children varies from the norms of hearing children. For example, a deaf child takes approximately two years to complete second grade and one and one-half years to cover third grade material. This is discouraging to deaf children and their parents as well.

Educational achievement scores are influenced by the age at which the deaf child enters school, the amount of recreational reading, the amount and use of residual hearing, and opportunities for problem-solving. Infrequent achievement testing may further depress scores by depriving deaf pupils of experience in taking tests.

Persons administering educational achievement tests to deaf pupils should have a thorough understanding of the language development and learning problems of deaf pupils. Tests selected should conform to the curriculum and subject matter that is being used with the deaf pupils being tested. The vocabulary in the instructions for the test must be within the understanding of the deaf pupils being tested, and the examiner must make certain that pupils understand the directions.

PLACEMENT IN REGULAR CLASSES

It is seldom feasible for deaf pupils to be assigned to regular classes of hearing pupils at the elementary level, for the programs for hearing pupils have been found to be beyond the abilities of deaf pupils. Deaf pupils at the elementary school level usually do not have the language development, speechreading skills, speech growth, and general intellec-

tual achievement essential for effective and profitable participation in classes for hearing pupils. When deaf pupils are assigned to regular classes before they have the necessary skills, the pupils are confronted by an intolerable learning situation; they are educationally, socially, and emotionally isolated or segregated from their hearing classmates. They lack the communication skills and social development essential for sharing ideas, information, and experiences in the instructional program in regular elementary classes. They are, therefore, denied the success and satisfaction that should come through participation in class activities.

If, however, a deaf pupil can successfully participate on a part-time assignment in the activities of a regular class in the elementary school, he should have the opportunity. Such pupils will not be numerous; usually they will be those who lost their hearing in later childhood, after they had acquired speech and other language facility and had acquired considerable general intellectual development.

Assigning a deaf child to a hearing class on a part-time basis can have only one purpose: to allow him to progress faster academically than he would in the special classroom. The assignment of a deaf child to a class in an academic subject with normal hearing children for the purposes of socialization without regard for subject matter achievement is not the intent of such placement. Ample opportunity to socialize is provided the deaf child during recess, noon hours, lunch, and more formally, during physical education and rhythms periods and possibly art periods.

Deaf students should be considered for part-time assignments in regular classes only when there is evidence that each of the students has the ability and the background he needs to function in the class successfully, and that in doing the required work he will be meeting his educational needs and thereby furthering his educational goals.

The following criteria should be employed in determining whether a deaf student will fully profit from part-time assignments to regular classes:

1. The student is able to participate at or near the grade level of the regular class in using the receptive and expressive skills—speechreading, speech, language, reading, and writing.
2. The student's level of social and emotional maturity is at least equal to that of the students in the regular class to which the assignment is to be made.
3. The student gives attention to the job at hand and follows directions well.
4. The student is sufficiently independent, self-confident, and determined to function successfully in the regular class program.

5. The student's ability to learn, as indicated by the results of a standardized test, is average or above average.
6. The student's chronological age is within two years of the average age of the students in the regular class or classes for which part-time assignment is considered.
7. The students in the regular class will accept the deaf student as a member of the class and treat him with respect and consideration.
8. The teacher of the regular class understands the problems faced by a deaf student assigned to the regular class and is prepared to help the student solve each of his problems.
9. The enrollment of the regular class is sufficiently limited to permit the teacher to have opportunity to provide the special help needed by the deaf.
10. Appropriate sound amplification is available for his use in regular classes.
11. The family of the deaf student is interested in having him assigned to regular classes, will help him with his home assignments as much as it is possible and advisable to do so, and will help him to solve any problems he may encounter in adjusting to the environment of the regular class.
12. The deaf student is willing and reasonably eager to accept an assignment to a regular class or to more than one such class.

Even at the junior high school and senior high school levels, it is necessary to consider carefully whether a deaf pupil should be given even a part-time assignment to regular classes of hearing pupils, for many deaf pupils will be incapable of succeeding in anything other than the general activities of the class. Practically all deaf pupils at the junior and senior high school levels continue to need the help of the special teacher and the special class in order to be successful in part-time assignments in regular classes. The special teacher should continuously observe his deaf pupils in their regular class assignments at the junior and senior high school levels and promptly provide them any special help they may need to succeed. If there are deaf pupils who are not succeeding in regular classes even with special help, they should be returned to the special class for the deaf for a greater portion of their work.

CHAPTER V

Special Classes for the Deaf

In addition to all the needs that the hearing child has, the deaf child has needs that make essential the provision of special education facilities. The hearing child builds up during his early years a vast reservoir of language which, at the appropriate stage, becomes the basis of a complex and highly integrated reasoning process. The child who becomes deaf before the age of three years is denied the imitative acquisition of language as a tool for the ordinary purposes of life, and his development of a highly integrated cerebral function is inhibited. The deaf child's intellectual, social, and emotional potential lies dormant because communication essential to its development has been prevented by his hearing loss. The situation continues until he is given special instruction and training in: (1) speechreading; (2) speech; (3) auditory training; (4) vocabulary development; and (5) language skill. Not only is a deaf child's development blocked until he receives special education, but his rate of development, even when he is given special instruction, is much slower than that of the hearing child. These are the factors that make special education facilities essential for such children.

OPERATION OF SPECIAL DAY CLASSES

LEGAL AUTHORIZATION

In California deaf children may receive the special education they need in special day schools and special day classes operated by the public schools or in the two residential schools for the deaf maintained by the state.

The county superintendent of schools is required to establish and maintain programs for deaf minors "who reside in the county and in elementary or unified school districts which have an average daily attendance of less than 8,000 in the elementary schools of the districts or in unified or high school districts which have an average daily attendance of less than 8,000 in the high schools of the districts." [1]

Such programs shall, with the approval of the county board of education, be provided in one or more of the following ways:

[1] California Education Code, Section 8901.

- In special schools or classes of elementary and secondary grades
- By the employment of emergency teachers to provide special instruction in the regular schools of the district of the county
- By the maintenance of special classes of secondary grades
- By the employment of home instructors to give individual instruction in the home or at the bedside in institutions
- By cooperation with the Department of Rehabilitation in the provision of individual instruction and coordination services
- By contract with the county superintendent of schools of another county or with the governing board of any school district

Any elementary or unified school district which has an average daily attendance of less than 8,000 in the elementary schools of the district and any unified or high school district which has an average daily attendance of less than 8,000 in the high schools of the district, with the approval of the county superintendent of schools, may establish and maintain programs for deaf minors.

The county superintendent of schools, with the approval of the Superintendent of Public Instruction, may enter into agreement with an elementary, unified, or high school district for the district to provide for the education of such deaf minors.

Special day classes and special day schools for the deaf should be located where they can be reached with reasonable convenience from any part of the area they serve. Generally, special day classes should be operated in conjunction with regular schools so that deaf pupils may have an opportunity to participate in certain activities with hearing pupils. When special classes are operated in this manner, the staff of the regular school should be informed regarding problems of deaf children and should work cooperatively with the staff of the special day classes in providing the deaf pupils the best possible environment in which to work and play.

STATE FINANCIAL AID

A school district maintaining special day classes, or a special day school for the deaf, receives from the state the same basic aid per unit of average daily attendance in the classes or schools as it receives for regular classes. In addition support for special education is placed on a current basis and the structure for support is on a classroom basis, with the size of the special day classes prescribed by the State Board of Education. It is stipulated in the law that the pupils will be concentrated in a minimum of such classes based on the prescribed size. The allowance for a special day class for physically handicapped minors is $12,215. If less than half the number of pupils prescribed are enrolled, there shall be allowed to the district, in lieu of the allowance specified above, an amount of $1,018 per pupil in average daily attendance in each such class.[2]

[2] California Education Code, Section 18102.

Districts may also be reimbursed up to $389 for each unit of average daily attendance for expenses incurred in transporting deaf minors to and from special day classes. When a school district or county superintendent of schools furnishes transportation to and from special day classes for physically impaired minor pupils handicapped in mobility in vehicles operated exclusively for such purpose, the State Superintendent of Public Instruction shall allow 75 percent of any expense in excess of $389, but the additional allowance shall not exceed $73 per unit of average daily attendance of such pupils. Such amount shall be allowed as part of the second principal apportionment upon special request made therefor to, and upon approval by, the Superintendent of Public Instruction.[3]

County superintendents of schools are entitled to the same allowances from the state for expense incurred in operating special day classes and special day schools and transporting pupils to the classes and schools.[4] When a county superintendent of schools operates special classes or schools for hearing-handicapped minors, such special classes or schools are identified as "necessary small schools," and he is entitled to the small school apportionment appropriate to the level of average daily attendance or the number of teachers employed.[5] School districts that do not maintain special day classes or a special day school for deaf pupils residing in the districts may contract for the pupils' education with other districts or county superintendents of schools that operate special day classes or special day schools for deaf minors.[6] The school district or county superintendent of schools providing the service is entitled to the same basic aid or emergency school aid, classroom allowance, and transportation charges paid by the state and to receive, from the school district contracting for the services, payment for the cost of providing the services which are not covered by state allowances.

MINIMUM-SIZE PROGRAM

To provide an adequate sequence for a minimum program for the deaf, there should be three classes: one at the preschool level; one at the primary level (five years, nine months, to eight years, nine months); and one at the intermediate level (eight years, nine months, to eleven years, nine months); with plans for the development of the program at the junior high and senior high school levels. Therefore, unless a given district has at least 24 to 30 deaf children in prospect for establishing a program, the district should look to the state residential school for the deaf that serves that part of the state to provide the needed schooling. However, communities which need a special program for educating

[3] *Ibid.*, Section 18060.
[4] *Ibid.*, sections 18103, 18060.
[5] *Ibid.*, Section 17655.5.
[6] *Ibid.*, Section 6806.

deaf children but which do not have the requisite number of children for establishing a class at each of the suggested three levels may proceed to establish an elementary program for the deaf, starting with a single day class, if there is reason to believe that a second class will be possible within three years and a third class within another three years. In order to have a minimum-size program, as suggested, districts, counties, or districts and counties should explore the possibility of establishing a program to serve the maximum area and number of deaf children consistent with travel defensible in terms of distance and time.

MAXIMUM-SIZE CLASSES

The maximum number of pupils that may be enrolled legally in a special day class for the deaf depends upon the chronological age spread of the pupils. If the age spread is four years or less, ten children may be enrolled in a class. If the age spread is more than four years, only eight pupils may be enrolled in a class.[7] These legal maximums limit class sizes, but they do not indicate the sizes which have been found to be most desirable for effective instruction. Even in classes having a range of approximately one year in chronological age or grade achievement, teachers of the deaf generally find they can instruct more successfully when the class enrollment within the preschool group is held to six; the primary and intermediate groups, to eight; and the junior high school and senior high school groups to ten pupils. If the age spread or grade achievement within the class is two years or more, reducing the size of the class below the legal maximum is usually desirable.

MINIMUM SCHOOL DAY FOR THE DEAF

The minimum school day is set by the state for apportionment purposes. Attendance of deaf pupils in a graded special class for the deaf for the same number of minutes as constitutes a day of attendance in the same grade of regular classes shall constitute a day of attendance for the deaf.[8] The minimum school day for special day classes for schools for the deaf between the ages of three years and five years, nine months, is 180 minutes, inclusive of recesses and intermissions.[9] The minimum school day for grades one through three is 200 minutes, and for grades four through twelve, 240 minutes.[10]

EXTENDED ACADEMIC YEAR

When provided during the summer between the regular academic years, the programs for the deaf in special day classes and by individual instruction are considered as part of an extended academic year, as com-

[7] California Administrative Code, Title 5, Education, Section 193(a).
[8] California Education Code, Section 11201.
[9] California Administrative Code, Title 5, Education, Section 4.
[10] *Ibid.*, Section 9(g).

pared to the academic year for nonhandicapped. A school system is not required to secure prior approval for such extended school year programs. "Special training schools or classes may be conducted during the summer in the same manner as they are conducted during the academic year, but such classes are *not* to be reported as *summer school* classes." [11]

School districts operating special day schools and classes for deaf pupils are urged to give careful consideration to extending the educational year into the summer. Experience indicates that the summer school programs have been extremely beneficial to the pupils enrolled.

GRADE PLACEMENT FOR ATTENDANCE ACCOUNTING

School districts, *because of the need to determine the minimum school day required for apportionment purposes,* must be concerned with the grade placement of deaf pupils. Experience in grade placement of hearing pupils cannot be drawn upon as a guide inasmuch as deaf pupils, unlike hearing pupils, may be enrolled in special day classes at three years of age. A further complicating condition is that deaf pupils, unlike hearing pupils, do not average a full grade of achievement for each year of school attendance. The chart on this page shows the grade placement for attendance accounting purposes that is recommended in determining the appropriate minimum school day for deaf children in various age groups. When grade placement is thus determined at a given level, the children must be provided schooling for at least the minimum school day set by law for such grade level. It should be clearly understood that thus identifying a deaf child at a particular grade for attendance

RECOMMENDED GRADE PLACEMENT AND MINIMUM SCHOOL DAY

Age group	Grade placement	Minimum school day in minutes
Three years to three years, nine months	Junior nursery	180
Three years, nine months, to four years, nine months	Senior nursery	180
Four years, nine months, to five years, nine months	Kindergarten	180
Five years, nine months, to eight years, nine months	Primary grades	200
Eight years, nine months, to eleven years, nine months	Intermediate grades	240
Eleven years, nine months, to fourteen years, nine months	Junior high school grades	240
Fourteen years, nine months, and over	Senior high school grades	240

[11] *Attendance Accounting in California Public Schools* (1967 edition). Compiled by Jack T. Erikson. School Business Administration Publication No. 5. Sacramento: California State Department of Education, 1967, p. 29.

accounting and apportionment purposes does not imply that the deaf child is functioning at the same level as a nonhandicapped child with the same grade placement. In other words, because of his age a deaf pupil may be carried as being in sixth grade for attendance and apportionment purposes, although his instruction may be at the fourth grade level.

PROMOTION OF HOME-SCHOOL COOPERATION

Every effort should be made to coordinate school and home activities by establishing good communication between parents and teachers, psychologists, and school administrators. This is necessary so that parents may be acquainted with the educational goals established for their child; it is equally important for them to learn how to help the child accomplish these goals in purposeful activities outside the classroom. Contacts between the home and school can be accomplished in many ways—scheduled parent-teacher conferences, prearranged home visits, phone calls, and written communications sent by mail, pinned to the child's clothing, or handed to the parent by the bus driver.

As school personnel communicate with parents, they need to consider several basic facts: [12]

- Parents are by far the most important persons in the life of a deaf child.
- Parents are not prepared to accept a child who is not perfect, even though it is estimated that one child in every ten is physically, mentally, or emotionally handicapped.
- Parents want to be good parents, although sometimes they are not.
- Parents often have much greater capabilities than professionals attribute to them.
- Parents need and urgently want help.
- Parents learn chiefly through participation in the habilitation program of their child.
- Both parents and professionals can learn much about children with handicaps by working together.

Although it is important for teachers to establish positive and strong lines of communication with parents and to help them understand and accept their child, the extent to which an individual teacher can undertake parent counseling has to be determined by the administrator or supervisor of the program. The wise teacher, when a particular problem posed by a parent is beyond his depth of training and experience, makes an appropriate referral. Psychologists and counselors may be used to advantage in the parent counseling program. Regularly scheduled and well-planned parent-teacher conferences can be a most effective medium

[12] *Some Thoughts on Planning Parent Programs—Summary of a Symposium.* New York: United Cerebral Palsy Associations, Inc., 1953, pp. 2–3.

of communication with parents. The following guidelines are suggested for conducting such conferences:

1. Indicate the anticipated length of the conference ahead of time.
2. Let parents know what will be expected of them during the conference (the teacher should encourage an exchange of information with the parents, avoiding a one-way presentation).
3. Have available sufficient information about the child, the child's family, the school in general, and referral agencies.
4. Have available some of the child's work to show the parents.
5. Start and end the conference on a positive note.
6. Limit the number of ideas introduced during any one conference.
7. With the parent's approval, take notes of important points in duplicate. Use these notes to summarize the conference and give the parents one copy to take home for future use.[13]

Organizations of parents and teachers of deaf children can be most valuable in promoting home and school cooperation; however, they will encounter hurdles not common to the regular parent-teacher associations. For example, programs serving deaf pupils sometimes cover a wide geographic area, and some parents may find it difficult to attend. Therefore, they may meet less frequently than parents of normal children, but the programs should be so rewarding in terms of parent needs that parents will feel they cannot afford to be absent.

Parent-teacher organizations can provide additional opportunities for parent education. Carefully planned and professionally guided, these groups can serve as a valuable resource for individual parents. Parents need help in arriving at a common sense understanding of the facts about their children, what can be expected in their education, and what the future is likely to hold. Through lectures and demonstrations, especially when followed by discussions, many parents are able to learn facts and to acquire attitudes which will help them better accept their child and plan more realistically.

Many parents have been greatly helped by the educational programs of local, state, and national organizations such as the International Parents Organization (a section of the Alexander Graham Bell Association for the Deaf), the California Association of Parents of Deaf and Hard of Hearing Children, and local parent-teacher associations made up of parents and teachers of deaf children.

[13] John A. Barr, Chapter 12, "Parent-Teacher Conferences," *The Elementary Teacher and Guidance.* New York: Henry Holt and Company, Inc., 1958, pp. 211–31.

CHAPTER VI

Curriculum for the Deaf

A curriculum, in broad terms, may be defined or described as the educational experiences that children have in school. The curriculum is developed in light of the *goals of education* as set by society in general, the *methods and tools* developed by those concerned with the learning process and children, and the *nature of the learners* themselves.

THE GOALS OF EDUCATION

The goals of education for deaf pupils are essentially the same as those for normal hearing children. In general, the instructional programs for the education of deaf children should contribute to their development of:

1. Knowledge, skills, and attitudes necessary for educational achievement
2. Self-realization
3. Proper human relationships
4. Economic efficiency
5. Civic responsibility

The curriculum adopted for normal hearing pupils in a district is usually planned with the preceding goals in mind. The curriculum for normal hearing pupils is appropriate for deaf pupils insofar as it meets their educational needs. Its appropriateness is determined by the extent to which it recognizes the effects of deafness on child development and learning and the extent to which proper adaptions have been provided in methods, techniques, and tools of instruction.

THE METHODS AND TOOLS

Because impairment of hearing restricts the normal development of both receptive and expressive language, curricular considerations for deaf pupils must reflect a foundation or core of language acquisition and development. This means considerable emphasis on reading, writing, speaking, listening, and speechreading for all hearing-impaired pupils in all subject areas at all levels of learning.

In California the law mandates which subjects or courses of study shall be taught in the public schools.[1] The curricular content, except for a few areas such as music, does not differ for deaf children. Differences do occur in the methods of instruction, rate of progress in subject matter disciplines, the relationship of content material to the language development needs of deaf children, the emphasis upon important communication skills, the emphasis upon consistency and continuity of instruction, and the necessity of giving considerably more attention than usual to the lives of these children before they come to formal instruction programs and during out-of-school hours. In essence, the fundamental concern with curriculum by those organizing and planning instruction for deaf children is *how* educational goals are to be achieved.

BASIC SKILLS

By the initiation of a special educational program, the effect of sound deprivation can be minimized and to a degree overcome. Inherent in such a program is intensive and highly technical instruction in basic tool skills which are of critical importance to the deaf child.

Auditory Training. Some remnant of hearing often remains even when hearing loss is great. By skillful use of methods and materials, the teacher can teach the deaf child to discriminate between gross sounds such as a horn and a bell. By means of a carefully designed program, the child with a remnant of hearing can be educated to the point where he is able to discriminate between vowels and between consonants. Eventually, the child's achievement may indicate that his educational needs would be better met in a class for the severely hard of hearing than in a class for the deaf, and his placement should be reevaluated.

Speechreading. Through speechreading or lipreading, the child learns to equate the positions of the lips, teeth, and tongue with the sounds being uttered. Through a systematically planned program, this receptive skill in communication can be developed to a high degree. Research has shown that speechreading and use of residual hearing, developed through a program of auditory training, enhance each other.[2]

Speech. The acquisition of speech is one of the goals of an educational program for the deaf child who lost his hearing before speech habits and patterns were fixed. The deaf person whose speech is understood by strangers is in a more advantageous position than a deaf person who does not have this skill. The social and economic advantages are self-evident. Deaf children need this communication skill that will enable them to live and work in a hearing and talking society. All education is designed to provide them with this skill.

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[1] California Education Code, sections 7604–7756.
[2] Clarence V. Hudgins, "The Response of Profoundly Deaf Children To Auditory Training," *The Journal of Speech and Hearing Disorders,* Vol. XVIII (September, 1953), 273–88.

Language. The most important basic skill for the deaf child is the acquisition of language—more important than speech.

But one point on which we have reached almost universal agreement is that *language is the keystone upon which successful education of the deaf ultimately rests.*[3]

The educator of the deaf must necessarily give attention to the learning goals for deaf children, taking into account the nature of the learning problem with full consideration of the methods and tools available. The curriculum for deaf children, regardless of their age, ability, or grade level, must have language development as its core. This is true whether the educational experience is mathematics, social science, or even a school assembly. Inherent in educating deaf children is the utilization of all experiences to develop and reinforce language growth. Formalized courses of study must have language development values built into them.

The child's progress in acquiring language will be governed only by the extent to which the teacher uses her own ingenuity, flexibility, and knowledge of how children grow and develop. Perhaps she may find some help in the following guides to practice:

1. Language teaching should be related to significant and meaningful experiences of the children.
2. Language should constantly be made to serve a purpose for the child.
3. All sensory channels should be used to teach language.
4. Teachers need to be alert to the ideas that are developing in children so that they may provide the children with language with which to express themselves.
5. Children need many varied contacts with the same language in order to make it theirs.
6. Many children need formal, systematic aids to the acquisition of language. Many shun language when they feel insecure in its use.
7. Schools and homes should create an atmosphere where language is used and where books are read regularly.[4]

METHOD OF INSTRUCTION

Inherent in the educational philosophy of instructing deaf minors in day classes and day schools within the public school framework is an oral method of instruction. All education for the deaf entails training in speaking and in reading lips. Teaching a deaf child to speak requires special instruction in articulation and phonation, using visual, tactual, and kinesthetic means. Speechreading (lipreading) involves training to identify words and expressions as seen on the lips and faces of persons talking. The term "oral education of the deaf" refers to this type of instruction training in communication.

Elementary Curriculum. The major goal of the curriculum for deaf children at the elementary level is the development of a sound language foundation for each child. This foundation is the critical factor of success in learning for deaf pupils during subsequent school experiences.

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[3] Grace Harris Lassman, *Language for the Preschool Deaf Child.* New York: Gruen & Stratten, Inc., 1950, p. ix.

[4] *Hearing and Deafness* (Revised edition). Edited by Hallowell Davis and S.R. Silverman. New York: Holt, Rinehart and Winston, Inc., 1960, pp. 447–48.

A language foundation is developed with a strong emphasis on speech, speechreading, reading, writing, and auditory training. The emphasis on language development must continue as knowledge, skills, and attitudes are pursued in the various elementary subject disciplines. It is highly important to organize and plan instruction so that the development of language and the acquisition of subject matter support or complement each other.

Secondary Curriculum. The secondary curriculum for deaf students extends and builds on the foundation of knowledge, skills, and attitudes which has been laid in elementary school. It is imperative that curriculums for deaf secondary students give attention to language development and reinforcement. Although methods, techniques, tools, and materials must be appropriate for the age level, the stress on reading, writing, speech, speechreading, and auditory training should continue throughout the secondary school years for all hearing-impaired pupils. The usual emphasis on the academic fundamentals of basic skills should not detract from the focus on language acquisition and development. Academic subject matter can provide a wealth of material for reading, writing, and other communication skills.

As deaf students move toward graduation and adulthood, attention is given to the several alternatives confronting them—higher education, postsecondary technical training programs, vocational training, or employment.

A survey conducted on occupations of the adult deaf revealed that over 70 percent are concentrated in skilled and semiskilled manual operations.[5] Because of the survey, it would appear that, except for the students who are college oriented, the program for the majority of deaf students should be vocational in nature. In terms of future employment, vocational training and industrial arts hold greater promise of practical value for deaf students in junior, senior, and four-year high schools than for hearing students. Emphasis upon vocational or industrial arts does not detract from appropriate attention being given to academic subjects or communication skills.

Also revealed in the survey, however, was the fact that a significant number of deaf adults did not enter or remain at the trades taught them in school.[6] An explanation may be that few high schools have offerings in every vocation and trade that deaf students may be interested in pursuing.

A work experience program makes it possible for deaf students sixteen years and over to be given part-time assignments in conjunction with their school studies. A work experience program may be (1) exploratory work experience education; (2) general work experience edu-

[5] Anders S. Lunde and Stanley K. Bigman, *Occupational Conditions Among the Deaf—A Report on a National Survey Conducted by Gallaudet and The National Association of the Deaf.* Washington, D.C.: Gallaudet College, 1959, p. 21.
[6] *Ibid.*, p. 90.

cation; or (3) vocational work experience education. Such a program provides not only a learning experience for the deaf student but also a guide toward deciding the most suitable program through vocational rehabilitation. Financial assistance in providing work experience programs is available on a three-to-one matching basis through contract with the Department of Rehabilitation.[7]

Organization of the Curriculum. Educating deaf children is a complex process involving many persons. The instructional program must provide for the development of fundamental knowledge, skills, and attitudes through subjects included in the curriculum. This instructional program must also stimulate, develop, and refine language ability for all deaf children. A curriculum for the deaf will recognize basic educational goals and organize learning so that these goals may be realized. The organization will provide proper sequence of learning and continuity of experiences, articulation among various subjects and between different levels, and proper stress upon essential communication skills.

Those who organize a curriculum for deaf pupils must recognize that the learners are sensory-handicapped individuals. Moreover, they must recognize that individual differences exist within each deaf child as well as among deaf children. As with normal hearing children, differences in abilities, in desire to learn, and in efficiency in learning are inevitable and real. The need for flexibility in the curriculum for deaf children is dictated by their special needs and individual differences.

Organization generally can be described in two dimensions. Vertical organization provides for the appropriate movement of pupils from admission to departure or completion. Horizontal organization provides for classification and assignment of pupils to a particular *teacher*, depending upon a number of factors about the learners. Many possible organizational plans and detailed studies of school instructional organization are available in the professional literature. Whatever organizational plan is adopted by a district for deaf pupils, it must realistically provide *when* to teach *what* by *which language system* to whom and for *what reasons*.

[7] California Education Code, Section 6933.

CHAPTER VII

Classrooms for the Deaf

A classroom for deaf pupils should be large enough to accommodate the special equipment and teaching materials used in the instruction of such pupils.[1] A great deal of demonstration, dramatization, and movement is connected with the teaching of deaf pupils, which makes adequate classroom space essential. School districts using classrooms built for groups of 30 regular pupils have found that all the space in such classrooms can be used advantageously in providing successful instruction for the smaller number of pupils enrolled in a class for deaf children.

CONSTRUCTION

Classrooms for deaf pupils should have electrical outlets permitting convenient use of group hearing aids. Adequate lighting is essential, with a minimum of 50 foot-candles in classrooms where speechreading is required. The light should be of steady intensity, and glare and undesirable light reflections should be eliminated. The room should be designed so that no pupil has to look into the source of light when reading the lips of his teacher or classmates.

Classrooms for deaf pupils should be located away from sources of noise, for it is essential that the teacher be able to hear readily all aspects of each deaf pupil's efforts at speech. Since speech is composed of high and low frequencies of varying degrees of intensity, deaf pupils having any residual hearing should have classrooms free from outside noises so that they may better sense the various components of the teacher's speech. To ensure the best possible teaching conditions, the floors in classrooms for the deaf should be carpeted to reduce noise arising from classroom activities. The ceilings and upper walls of the classroom should be constructed of some type of sound conditioning material that will help to eliminate noise.

Classrooms for the deaf in the elementary grades should be located on the first floor, as easy and rapid access to the outdoors is needed to enable the teacher to take her class on numerous short study trips. It should be possible to darken rooms quickly in order to use slides and

[1] See Section 2046(b) of the California Administrative Code, Title 5, Education, for the State Board of Education regulation which specifies the "proper and adequate" space for classrooms for deaf pupils.

short filmstrips in teaching. There should be a workbench and vise in the room as well as a sink and running water.

In planning and building classrooms to house an educational program for deaf children, it is necessary to consider not only the classrooms but also the site and the plant. Detailed suggestions regarding the features of these components follow:

SITE AND PLANT FEATURES

Item	*Considerations*
Site	A site should be located so that a maximum attendance area can be served, and the site should be free of industrial or commercial noises, excessive traffic, or dangerous physical conditions. The site must conform to all other standards set in the California Administrative Code, Title 5, Education, Section 2001(a)(g).
Building	Considerations for buildings to house several classes for the deaf should include: Adaptation to fit educational needs Safety Healthfulness Convenience Expandability Flexibility Aesthetic fitness Economy of construction
Classroom location	Classrooms for the deaf should be: On the quiet side of the building, away from road or highway traffic noise Away from main corridors Near restrooms Near playyards An integral part of the school plant Away from industrial arts or music rooms Insulated from the noise of central heating systems, toilets, lunchrooms, and the like

ROOM FIXTURES AND FEATURES

Item	*Specifications and minimum requirements* [2]
Bulletin boards	At least 5 square feet per child
Cabinet storage	Fixed or portable to provide adequate space for materials to be stored

[2] Although specifications and requirements will be determined by the ages and number of children, quantity of items on hand, and type of program, certain minimum requirements prevail.

Ceiling	Acoustically treated with appropriate sound absorption materials
Chalkboard	At least 3 linear feet per child
Clock with bell	One per room, with Arabic numerals and preferably with a light that flashes simultaneously with the ringing of the bell
Coat closet	One wardrobe and teacher's storage cabinet
Coatrack	Adequate to store children's coats, rubbers, umbrellas, and so on
Counter top	Approximately 5 square feet per child
Electrical outlets	Adequate to permit full use of electrically powered equipment
Floor	Carpeted
Lighting	Steady intensity, free of glare, and adequate to meet the needs of the pupils
Sink	One per classroom, with drinking fountain attached
Temperature	Controlled in each room; all-year temperature control
Toilets	One per classroom (in preschool and kindergarten rooms)
Walls	Acoustically treated with appropriate sound absorption materials
Windows	Appropriate for light control and for eye ease; equipped for rapid darkening of the room

FURNITURE AND EQUIPMENT

A classroom for the deaf should be provided with desks, tables, chairs, and other equipment similar to that found in classrooms for pupils with normal hearing. The room should be equipped with steel files for keeping pictures and other instructional materials used in speechreading, speech training, vocabulary building, and other language development activities. A large mirror on a flexible mounting that will allow deaf pupils to see their own speech positions and articulation movements should be in the classroom. The classroom should also contain the appropriate special equipment, such as a group amplification unit, commonly used in teaching deaf pupils.

A chalkboard is used extensively in the teaching of deaf pupils, and at least three linear feet of chalkboard should be provided for each pupil enrolled in the class. Bulletin boards are needed on which to dis-

play items of current interest to the pupils. Stands or frames should be available for hanging Plymouth charts, vowel and consonant charts, speechreading charts, vocabulary charts, daily experience charts, and other essential instructional devices. Tools and materials for simple construction activities are needed. There should be a science corner and facilities for displaying animals, birds, rodents, reptiles, fowl, fish, and plants to be studied and used in experience and language development.

SUPPLIES [3]

A teacher of the deaf usually uses more supplies per pupil and more kinds of supplies than a regular teacher uses; it is especially important for the teacher of the deaf to have the supplies he needs to capitalize upon spontaneous learning situations. Large items that can be handled are sometimes required in a classroom for deaf children, for the children need to feel, look at, and examine an item before learning its name and purpose.

The list of supplies which may be necessary and useful in an educational program for deaf children is inexhaustible, and no attempt is made here to list even the commonly used items. The following guides are helpful, however, in considering the purchase of supplies:

- Purchase of supplies should reflect the educational program for deaf children.
- All supplies should be purchased for the benefit of children.
- Whenever possible, supplies should conform to standard items purchased by a district or county. However, provision of supplies must not be limited to, or restricted by, a standardized list if adequate justification demonstrates the need of special items for the instruction of deaf children. Supplies should not be ordered on the basis of the personal preference of a single teacher.
- Supplies should be of durable quality and of sufficient quantity for classroom use. Often it will be necessary to purchase an item in sufficient number so that each child will have his own.
- Sometimes it is justifiable to supply classrooms with duplicate items.
- Supplies should be ordered in wholesale lots whenever possible.
- Specifications for supplies should always be prepared and used in procurement.
- Supplies which conserve teacher time should be considered economical.

Supplies wear out and are otherwise expended. A periodic inventory must be made so that instruction does not suffer for want of the proper supplies. A periodic inventory will also eliminate unnecessary duplication of supplies and unnecessary expenditures.

[3] State School Building Aid for Exceptional Children does not provide allowances for supplies.

LIST OF MINIMUM FURNITURE AND EQUIPMENT FOR CLASSROOMS FOR THE DEAF [1]

Item	Age range of pupils							
	Three–six		Six–nine		Nine–twelve		High school age	
	Deaf	HOH	Deaf	HOH	Deaf	HOH	Deaf	HOH
Amplification system—group, individual, or loop system	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Aquarium—15-gallon, w/heater, circulating pump, filter	1	1	1	1	1	1	--	--
Autoharp	(c)	(c)	(c)	(c)	--	--	--	--
Barometer—wall	--	--	--	--	1	1	1	1
Battery recharger	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Blocks—hollow instructional (set)	1	1	1	1	--	--	--	--
Blocks—solid instructional (set)	(a)	(a)	(a)	(a)	--	--	--	--
Cabinet, book—portable, 30″ × 50″	2	2	2	2	2	2	2	2
Cabinet, file—four-drawer, w/lock (legal size)	1-(g)	1-(g)	1-(g)	1-(g)	1-(g)	1-(g)	1-(g)	1-(g)
Cabinet, paper storage—portable, to accomodate newsprint and chart paper	1	1	1	1	1	1	1	1
Camera—Polaroid	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
Camera print copier—Polaroid	(f)	(f)	(f)	(f)	(f)	(f)	(f)	(f)
Cart, A-V—adjustable	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Cart, clay—portable, 100-pound capacity	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)
Chair, pupil's	16	20	16	20	16	20	16	20
Chair, teacher's	1	1	1	1	1	1	1	1
Chair, vistor's—adult size	2	2	2	2	2	2	2	2
Chalkboard—portable, adjustable height	1	1	1	1	1	1	1	1
Desk, pupil's—adjustable height	0	0	8	10	8	10	8	10
Desk, teacher's	1	1	1	1	1	1	1	1
Ditto machine—manually operated	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Divider, room—movable, in lieu of built-in tutoring center	4 (a)	4 (a)	4 (a)	4 (a)	4 (a)	4 (a)	4 (a)	4 (a)
Easel—large w/rack for paints	4	4	4	4	--	--	--	--
Encyclopedia (set)	--	--	1	1	1	1	1	1
Flags—large, wall; U.S.A. and California	1	1	1	1	1	1	1	1
Flannel board—large	1	1	1	1	1	1	--	--
Furniture, play—instructional (one set)	1	1	1	1	--	--	--	--
Globe—large	1	1	1	1	1	1	1	1
Kiln—electric, 110v	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)	(b) (a)

Key: (a) Justification required
(b) One available for one to four classrooms operating in the same building
(c) One available for one to two classrooms operating in the same building
(d) Allowable under construction cost as a building fixture
(e) Appropriate for age level
(f) One per building housing classes
(g) Additional files allowable if justified

LIST OF MINIMUM FURNITURE AND EQUIPMENT FOR CLASSROOMS FOR THE DEAF [1]—Continued

Item	Age range of pupils							
	Three–six		Six–nine		Nine–twelve		High school age	
	Deaf	HOH	Deaf	HOH	Deaf	HOH	Deaf	HOH
Laboratory, reading language—SRA type	1	1	1	1	1	1	1	1
Language master	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Maps—wall	1	1	1	1	1	1	1	1
California								
U.S.A.								
North America								
World								
Microscope	--	--	(c)	(c)	(c)	(c)	(c)	(c)
Mirror—portable, adjustable height, tilt angles, large	1	1	1	1	1	1	1	1
Models								
Eye	--	--	--	--	--	--	1	1
Ear	--	--	--	--	--	--	1	1
Human body	--	--	--	--	--	--	1	1
Models, mechanical—steam engine, gears, and so forth	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)
Oscilloscope	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Paper-cutter—"Slide-N-Cut" type, large	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Phonograph—variable-speed, with speech speed included	1	1	1	1	1	1	1	1
Piano or organ	1	1	1	1	--	--	--	--
	(a)	(a)	(a)	(a)	--	--	--	--
Plymouth chart	2	2	2	2	2	2	2	2
Projector(s)								
8mm	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
16mm	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Filmstrip-slide combination	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Opaqued	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Overhead	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Puzzles and games—instructional	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)
Rack, chart	2	2	2	2	2	2	2	2
Reader, controlled—calibrated speeds	--	--	--	--	(c)	(c)	(c)	(c)
Reading pacer—calibrated speeds	--	--	--	--	(c)	(c)	(c)	(c)
Rhythm instruments (set)	1	1	1	1	--	--	--	--
Rug, room-size—in lieu of wall-to-wall carpeting	1	1	1	1	1	1	1	1
Science instructional equipment	(e)	(e)	(e)	(e)	(e)	(e)	(e)	(e)
Science teaching center—portable	--	--	1	1	1	1	1	1
Screen, projection—portable wall or stand model	1	1	1	1	1	1	1	1
Shades or drapes	(d)	(d)	(d)	(d)	(d)	(d)	(d)	(d)
Slide viewer	1	1	1	1	1	1	1	1
Stand for butcher paper—w/tearing guides	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Table, activity—adjustable height, 30″ × 50″	1	1	1	1	1	1	1	1
Table, library—adjustable height, 36″ × 72″	1	1	1	1	1	1	1	1

LIST OF MINIMUM FURNITURE AND EQUIPMENT FOR CLASSROOMS FOR THE DEAF [1]—Continued

Item	Age range of pupils							
	Three–six		Six–nine		Nine–twelve		High school age	
	Deaf	HOH	Deaf	HOH	Deaf	HOH	Deaf	HOH
Table, projection—adjustable, portable, w/wheels	1	1	1	1	1	1	1	1
Table, special purpose—circular or trapezoidal, fitted for clusters	2	2	2	2	2	2	2	2
Table, tutoring—20″ high, 20″ × 24″ top	1	1	1	1	1	1	1	1
Table, typing—adjustable height	One per typewriter							
Tachistoscope	--	--	1	1	1	1	1	1
Tape recorder—variable speed with speech speed included	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Television set—UHF, VHF, front speakers, outlet jack for use with amplification system	(a)	(a)	(a)	(a)	(a)	(a)	(a)	(a)
Terrarium—15-gallon	1	1	1	1	1	1	--	--
Thermometer—wall	1	1	1	1	1	1	1	1
Tools, hand (set)	--	--	1	1	1	1	--	--
Tools, hand—miniature, Marx toy type (set)	--	--	1	1	1	1	--	--
Transparency maker	(b)	(b)	(b)	(b)	(b)	(b)	(b)	(b)
Tricycle—large	2	2	2	2	--	--	--	--
Typewriter—standard								
Primary type	(c)	(c)	(c)	(c)	(c)	(c)	(c)	(c)
Pica type	1	1	1	1	1	1	1	1
Wagon—large	2	2	2	2	--	--	--	--
Workbench—w/vise and storage, four place	--	--	1	1	1	1	--	--

[1] Application for furniture and equipment for a multigraded class will be approved on an individual basis and according to the nature of the enrollment.

CHAPTER VIII

Multiply Handicapped Deaf Children

Deaf children who have other handicaps are few in number, but their additional handicaps compound the problems of deafness. Consequently, multiply handicapped deaf children present problems that cannot be solved by the majority of school districts; and with the exception of the deaf-blind, there is even an absence of professional guidelines for the management of multiply handicapped deaf children. Nor are there guidelines for a teacher-preparation program to provide the staff for the educational needs of these children.

THE MENTALLY RETARDED DEAF CHILD

The range of intelligence of any unselected group of deaf children is generally about the same as for any unselected group of hearing children. A slightly larger percent of deaf children are mentally retarded because the illness that impaired their hearing also may have affected their mentality. However, very few deaf children should be considered mentally retarded or deficient from psychological testing alone. They must also have ample opportunity to reveal their developmental capacity. This opportunity can best be given in a special day class or school for the deaf affording qualified and competent instruction. If, with this opportunity, a deaf child performs unsatisfactorily in learning situations in which most deaf pupils progress satisfactorily, he may then be more safely considered mentally retarded.

An increasing number of school systems are providing adjusted programs for hearing children who are mentally retarded. These special programs are provided for children who may be expected to benefit from special educational facilities designed to help them become economically useful and socially adjusted. More severely retarded children may be expected to benefit from special educational facilities designed to help them to further their individual acceptance, social adjustment, and economic usefulness in their homes and a sheltered environment. The deaf child who is mentally retarded needs similar opportunities because of the mental retardation plus the special help he needs to compensate for his deafness.

There are special programs for deaf children with severe mental retardation at three of the state hospitals in California. Programs are urgently needed, however, for deaf children who are less severely mentally retarded. The number of moderately mentally retarded deaf children is not great enough in most school districts to warrant establishment of specific educational programs for them. Except in one or two very large districts, and possibly one or two large counties, such programs probably should be established by the state.

State hospitals maintaining training classes for eligible mentally retarded deaf children are:

Pacific State Hospital
Spadra, Calif.
(Mailing address:
P.O. Box 100, Pomona, Calif. 91769)

Porterville State Hospital
P.O. Box 2000
Porterville, Calif. 93258

Sonoma State Hospital
Eldridge, Calif. 95431

THE BLIND DEAF CHILD

Some children are both deaf and blind. The total number of blind deaf children in the country, although small, is larger than the present enrollment in programs for the blind deaf would indicate. Surveys conducted by the American Foundation for the Blind indicate that in the United States this double handicap is borne by approximately 200 children, less than half of whom are enrolled in special programs.[1]

The deaf child relies heavily upon vision in his learning activities, while the blind child depends primarily upon hearing and touch in his learning activities. Since hearing and vision are denied the blind deaf child, touch is his chief source of learning. Since the learning task confronting the blind deaf child is extremely difficult, teaching him requires a high order of general ability, extensive training in the field of the deaf and blind, and demonstrated skill.

No school district in California maintains a separate program for the blind deaf. A district may, however, establish a program for blind deaf children. In establishing such a program, the administration should be aware that generally two blind deaf children constitute a full-time teaching assignment. Established departments for blind deaf children exist in the following residential schools:

Alabama Institute for Deaf and Blind
Talladega, Ala. 35160

California School for the Blind
Berkeley, Calif. 94705

[1] Elizabeth M. Wagner, *Statistical Reports, 1965–66*. New York: American Foundation for the Blind, 1966.

Illinois Braille and Sight Saving School
Jacksonville, Ill. 62650

Iowa School for the Deaf
Council Bluffs, Iowa 51501

Perkins School for the Blind
Watertown, Mass. 02172

Michigan School for the Blind
Lansing, Mich. 48901

New York Institute for the Education of the Blind
New York, N.Y. 10032

Washington State School for the Blind
Vancouver, Wash. 98660

The program for the education of the deaf-blind in California is provided at the California School for the Blind in Berkeley.

THE EMOTIONALLY DISTURBED DEAF CHILD

The emotionally disturbed deaf child presents problems of an educational nature which cannot be solved until the cause or causes of his emotional disturbances are removed or ameliorated.

The implication for staffing and ancillary services of a program for the many types of disturbed deaf children within this broad category would place the development of such a program outside the resources of all except the larger school districts in the state on the basis of available incidence figures.

> There have been various estimates of the number of emotionally disturbed deaf children. From the experience gained from the population of Illinois school-age deaf children, it seems reasonable to estimate that 1 percent of the school-age deaf children have emotional problems which interfere with their learning and progress in regular programs for deaf children.[2]

On the basis of a small number of deaf children who are emotionally disturbed, it would appear that the successful approach to their management and schooling would be in a state-supported educational facility.

THE CEREBRAL PALSIED DEAF CHILD

Some children are afflicted with deafness and cerebral palsy. When their cerebral palsy is mild or their recovery has been good, such children should be enrolled in special day classes or residential schools for the deaf if they can adequately benefit from the program offered. Placement should be decided individually for each child. The teacher of the deaf should have a voice in the decision since he is in the best position to determine what he can do for the child and still meet the needs of the other deaf children in the class.

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[2] Frank B. Withrow, Jr., "A Proposed Program for Emotionally Disturbed Children," *Report of the Proceedings of the International Congress of Education of the Deaf, and of the 41st Meeting of the Convention of American Instructors of the Deaf.* Senate Document No. 106. 88th Congress, 2d Session. Washington, D.C.: U.S. Government Printing Office, 1964, p. 353.

Unfortunately, some deaf children are so badly handicapped with cerebral palsy that enrolling them in a special day class or residential school for the deaf is not feasible. Neither program can accommodate the deaf cerebral palsied child who is nonambulatory or the child with a severe impairment of vision or speech. Such children need services which the special day classes and schools for the deaf are not equipped or staffed to offer.

In their long-range planning, planners of programs for cerebral palsied children should consider adding to the staff a teacher trained and experienced in the management of deaf children. Although cerebral palsied deaf children are few in number, in a class of these children there will be a wide range in hearing loss, age, and language competency, which will require the teacher to work individually with each child.

THE APHASIC CHILD

Aphasia is a communication disorder easily mistaken for deafness. The aphasic child often appears not to hear, and he frequently fails to learn to talk. His understanding of the spoken or printed word is often limited or lacking. Since these symptoms also characterize the deaf child, health and school authorities not infrequently have concluded that an aphasic child's problem is deafness and have enrolled him in a program for the deaf.

The educational needs of the aphasic differ, however, from those of the deaf child. The aphasic's handicap is not in the ear or the end structures of speech but in some part of the brain or central nervous system.

Provision has been made to identify aphasic children and meet their needs by special day classes. Therefore, teachers, supervisors, and psychologists working with deaf children—especially preschool and primary school children—should be thoroughly informed regarding aphasia and be on the alert for behavior that is indicative of aphasia rather than of deafness. The information will help them to discover aphasic children who are inadvertently enrolled in classes or schools for the deaf.

CHAPTER IX

Public Services for Deaf Children

Many complex problems are involved in providing educational programs for children who are deaf, and several agencies in state government provide services for these children. The agencies and the help they provide are outlined in this chapter.

THE STATE DEPARTMENT OF EDUCATION

To assist with these problems, the California State Department of Education provides professional services and two residential schools for deaf children.

The professional services are provided through the Department's Division of Special Schools and Services. The Bureau of School Planning of the Division of Public School Administration assists school districts in developing adequate physical plants under the State School Building Aid Program.

THE BUREAU FOR PHYSICALLY EXCEPTIONAL CHILDREN

The Bureau for Physically Exceptional Children provides the services of consultants in the education of deaf children. The consultants perform the following services:

- Assist in the development, promotion, and coordination of statewide policies and practices for the education of deaf children
- Confer with federal, state, and school district officials in the development of curriculum, organization, and administration of education programs for deaf children
- Study the requirements for and recommend the purchase of appropriate equipment for programs in special day schools and classes
- Assist school district officials to plan institutes and workshops for inservice training of teachers of deaf children

The Bureau for Physically Exceptional Children also provides the services of consultants in other areas of exceptionality such as visual and speech defects. The bureau seeks in all appropriate ways to promote and strengthen special education programs and provisions for physically handicapped minors, as authorized by law and state regulations.

THE BUREAU OF SCHOOL PLANNING

The Bureau of School Planning has the responsibility of approving school sites and plans for all school facilities. The extent of this jurisdiction is spelled out in the California Education Code. The services of the bureau are available to the following school districts serving kindergarten and grades one through fourteen:

- Districts over which the Department of Education has legally imposed jurisdiction [1]
- Districts not under the Department of Education's legal jurisdiction, but which request consultant and survey services [2]
- All districts financing projects with federal or state school building aid funds [3]

The Bureau of School Planning maintains offices in Sacramento at 721 Capitol Mall and in Los Angeles at 217 West First Street. This bureau functions as a planning resource center, with sole Department of Education responsibility for planning, evaluation, and approval. Other bureaus in the State Department of Education contribute to the total program of school planning by joining the school planning staff in conferences which may or may not include school district personnel. The staff of the Bureau for Physically Exceptional Children frequently joins the Bureau of School Planning in conferences with school district personnel relative to planning special education facilities.

The recommended procedure for school districts anticipating the construction of special education facilities follows:

1. The school district surveys the school-aged population within the school district to determine how many children qualify for placement in special classes for the deaf. Pupils from neighboring school districts can also be included if they are to be educated in special day classes operated by the district on a contract basis.
2. The district determines how many special classrooms are needed for these pupils and on what school site classrooms are to be built.
3. The district submits the names of all eligible pupils and other information requested on Form SE/PE (1)(D/HH) to the Bureau for Physically Exceptional Children.
4. The Bureau for Physically Exceptional Children verifies the list of children and determines the number of classrooms which should be planned. Written approval is sent from the Chief of the Bureau for Physically Exceptional Children to the Chief of the Bureau of School Planning.

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[1] California Education Code, Section 15409.
[2] *Ibid.*, Section 15302(c).
[3] *Ibid.*, Section 18601.

5. The district schedules a conference with field representatives of the Bureau of School Planning serving the particular area. At this conference the planning program to be undertaken is identified, a planning program schedule is formulated, and the personnel who will participate in the planning of the school are named.
6. The school district identifies the special education program, objectives, and activities to be implemented by the program. This process takes varying amounts of time, depending upon familiarity with the program.
7. The district spells out the educational program requirements for the benefit of the architect so he can begin to develop sketches.
8. The district conducts a series of planning conferences involving any specialists in the particular area under consideration.
9. The school district staff, the field representative of the Bureau of School Planning, the staff member representing the Bureau for Physically Exceptional Children, and the district architect determine the best tentative layout of school facilities.
10. The district architect submits the final draft of the basic plan to the Bureau of School Planning for approval.
11. The Bureau of School Planning field representative evaluates the final basic plan and makes any modification or gives written approval.
12. The district architect prepares final working drawings and submits them to the Bureau of School Planning for final approval.
13. The Board of Allocations approves all applications for housing and allocates funds to the district for construction.
14. Furniture and equipment are also authorized for classrooms constructed under State School Building Aid. A list of furniture and equipment for the special classrooms should be submitted to the Bureau of School Planning, which involves the Bureau for Physically Exceptional Children in final approval.

STATE SCHOOL BUILDING AID FOR SPECIAL CLASSROOMS

In 1952 special provisions were made in the State School Building Aid Program for financing facilities for special classrooms for mentally retarded and physically handicapped minors.[4] This program provides that up to 3.5 percent of all funds made available for building aid may be used for facilities designed for handicapped minors; the funds are apportioned in each instance partially as grants and partially as loan grants to the district.

[4] California Education Code, sections 19681–19689.

Classroom space for deaf minors is provided in addition to the space allowances for nonhandicapped minors of the district, according to the schedule set forth in California Administrative Code, Title 5, Education, Section 2046(b):

2046. Building Area Required to Provide Adequate Facilities for Exceptional Children. Pursuant to Section 1801 of Title 2 of the California Administrative Code and Sections 19560, 19581, 19681, and 15302 of the Education Code, the Department of Education finds:

(b) The number of classrooms and the area set forth opposite the several sizes of classes in the following schedule are proper and adequate for the education of deaf or aphasic pupils over six years of age in special day classes:

AREA AND SIZE OF CLASS FOR DEAF OR APHASIC PUPILS

Number of classrooms allowed	Size of class		Maximum area		
	Minimum	Maximum	K–8	7–9	9–12
1	6	10	1,235 sq. ft.	1,335 sq. ft.	1,360 sq. ft.
2	12	20	2,470 sq. ft.	2,670 sq. ft.	2,720 sq. ft.
3	21	30	3,705 sq. ft.	4,005 sq. ft.	4,080 sq. ft.
4 or more	Classrooms × 8		Classrooms × 1,235	Classrooms × 1,335	Classrooms × 1,360

School districts that receive State School Building Aid for construction and equipment of classes for the deaf are obligated to return to the state not more than one-half of the amount apportioned for the construction of the special facilities.[5] Only those school districts that qualify for State School Building Aid may apply for these funds to construct classrooms for deaf minors. These classrooms should be incorporated in the master plan for all of the district's building needs.

A district's eligibility for classroom space under the provisions of State School Building Aid is determined by the number of deaf pupils to be housed at the school site. Districts qualifying for State School Building Aid and wishing to include classrooms for the deaf in their building requests should use the procedure cited in the preceding section of this chapter.

Eligible elementary and unified school districts with less than 8,000 average daily attendance in the elementary schools may make application for allocation of State School Building Aid funds to provide facilities for deaf children for special classes to be operated by the district or county superintendent of schools.

If the county superintendent of schools operates the program, Education Code Section 19685 must be complied with. The procedure in making application for these facilities is the same as the foregoing, except that the county superintendent of schools must approve the application. To determine the number of classrooms needed, the following pupils shall be considered:

[5] California Education Code, Section 19684.

1. Those residing in the applying district
2. Those residing in districts that would contract with the district operating the program

The district and the county superintendents should be informed of and alert to the repayment schedule set forth in Education Code Section 19685 for this facility and to the provisions of Education Code sections 19686–19689.

Subject to the approval of the Department of Education, apportionments may be made to school districts not otherwise eligible for the construction of facilities and the purchase of essential furniture and equipment for the education of exceptional children.

The Department of Education may approve applications when the facilities will be used by a county superintendent of schools required to educate such hearing handicapped minors. A school district may educate such minors by agreement with a county superintendent of schools required to educate such minors. Priority in the use of such facilities shall be given to districts other than the applicant district.

When such education is provided by the district, 50 percent of the apportionment shall be repaid with interest over such a period as the State Allocation Board may determine not to exceed 20 years. In any school year in which 50 percent or more of the pupils in average daily attendance are from the applicant district, the repayment for the succeeding fiscal year shall be an amount which would have been payable if the district had been required to pay 100 percent of the apportionment over such period.

When the county superintendent of schools conducts the classes in such a facility, the county board of supervisors shall pay to the district an amount equal to 80 percent of the amount the district is required to repay with respect to the apportionment described above.

The county board of supervisors shall raise the amount required through a general tax levy on the property within the participating districts, or through a tuition charge not to exceed one hundred sixty dollars ($160) a year per pupil by the county superintendent of schools to the school districts of residence of pupils attending the facility other than the district having the obligation to repay, or through a combination of these.[5]

Because of California's shifting population and sporadic growth, a school district sometimes may need to relocate a classroom that was constructed and its equipment furnished under State School Building Aid to meet the needs of the deaf. A recommendation for approval of such a transfer must be obtained from the Bureau for Physically Exceptional Children before the transfer can be made. Approval is granted by the Bureau of School Planning after consultation with the Bureau for Physically Exceptional Children when the district is able to provide

[5] California Education Code, Section 19683.5.

comparable facilities and to demonstrate that deaf pupils will not be adversely affected by the transfer.

THE BUREAU OF CRIPPLED CHILDREN SERVICES

The Bureau of Crippled Children Services of the State Department of Public Health offers a statewide, tax-supported program, administered locally by county health or welfare departments. In general, the program provides diagnosis and treatment for physically handicapped children whose defects are disabling and can be arrested or corrected.

No specified length of residence in California or in a particular county is required in order to secure the services of this program. It is necessary, however, for the family to establish the fact that it intends to make the county its normal place of residence, barring unforeseen circumstances.

Further information concerning the Bureau of Crippled Children Services and local programs may be obtained by contacting the Bureau of Crippled Children Services, Department of Public Health, 2151 Berkeley Way, Berkeley, California 94704.

THE DIVISION OF VOCATIONAL REHABILITATION

The vocational rehabilitation service provided by the State Department of Rehabilitation works on the principle that most physically impaired persons, including the deaf, can work efficiently if they are adequately prepared for jobs that are suited to their physical condition, aptitudes, and interests. Its purpose is to provide the services required to make the physically impaired employable, and to place them in suitable positions.

ELIGIBILITY FOR SERVICE

Applicants for vocational rehabilitation service should be adult or at least nearly ready to enter the labor market. Ideally, persons should be old enough to work upon completion of the rehabilitation program. The average rehabilitation program requires two years to complete, although the range is from a few months to four or more years.

There is no residence requirement, although the applicant should intend to reside in one place long enough to complete the rehabilitation program.

The applicant must be willing to cooperate in preparing for and securing employment.

SERVICES OFFERED

The three fundamental services provided by the Division of Vocational Rehabilitation are: (1) vocational counseling to help work out a suitable employment objective, (2) supervised vocational training, and (3) job placement.

The following services may also be provided if needed for employment: (1) medical and surgical treatment, including hospitalization; (2) prosthetic appliances and glasses; (3) maintenance and transportation while undergoing treatment or training; and (4) tools or equipment needed in training, on a job, or in self-employment.

TYPES OF TRAINING

Training may be provided in schools, by correspondence, by tutor, or on the job, according to circumstances. Both public and private schools are used, including technical, vocational, and commercial schools; colleges and universities may be used for professional training. If the selected occupation can best be learned on the job, arrangements are made with employers to provide the required training. Various combinations of training may also be used if needed.

Training may be given along any line that promises to be successful in the particular case. The training may be for a simple trade that requires little schooling, or it may be for professional work. It may be in any field—industrial, commercial, agricultural, personal services, or professional work. In each case, effort is made to fit the training to the needs, aptitudes, and interests of the individual.

SPECIALISTS FOR THE DEAF

The Division of Vocational Rehabilitation plans to provide in each of the 18 district offices a counselor for the deaf who has had special training in communication and rehabilitation needs of deaf persons.

PLACEMENT SERVICE

In every training program, the goal is successful employment. Placement service is provided for those who have completed training and for those who have work skills and do not require training. Efforts are made to ensure that jobs secured can be performed by the deaf with efficiency and safety.

APPLICATION

Applications for service may be made, or further information may be obtained, at offices of the Division of Vocational Rehabilitation:

Central Los Angeles Regional Office, 426 Spring Street, Los Angeles 90013

Downtown Los Angeles District Office, 107 S. Broadway, Room 7005, Los Angeles 90012

East Los Angeles District Office, 3504 E. Olympic Boulevard, Los Angeles 90023

South Central Los Angeles—South Gate District Office, 2621 Santa Ana Street, South Gate 90280

Central Valley Regional Office, 1500 5th Street, Sacramento 95814
Delta District Office, 31 E. Channel Street, Room 200, Stockton 95202
Fresno District Office, 2550 Mariposa Street, Room 2000, Fresno 93721
Bakersfield Branch Office, 345 Chester Avenue, Bakersfield 93301
Sacramento District Office, 923 12th Street, Sacramento 95814
Redding Branch Office, 2135 Akard Street, Redding 96001
Yuba City Branch Office, 481 Ainsley Avenue, Yuba City 95991
North Coastal Regional Office, 1111 Jackson Street, Room 5002, Oakland 94607
North Coastal District Office, 1739 4th Street, Santa Rosa 95404
Oakland District Office, 1111 Jackson Street, Oakland 94607
Concord Branch Office, 1849 Willow Pass Road, Concord 94520
Hayward Branch Office, 22245 Main Street, Hayward 94514
San Francisco District Office, 515 Van Ness Avenue, San Francisco 94109
San Rafael Branch Office, 1299 4th Street, San Rafael 94901
Palo Alto Branch Office, 445 Sherman Avenue, Palo Alto 94306
San Jose District Office, 935 Ruff Drive, San Jose 95110
Salinas Branch Office, 407 Crocker-Citizens National Bank Building, Salinas 93901
San Mateo Branch Office, 452 Peninsular Avenue, San Mateo 94401
Southern Regional Office, 107 S. Broadway, Los Angeles 90012
San Luis Obispo Branch Office, 2740 Broad Street, San Luis Obispo 93401
Los Angeles—Foothill District Office, 711 E. Walnut Street, Room 401, Pasadena 91101
Los Angeles—Southeast District Office, 230 E. 4th Street, Room 402, Long Beach 90801
Los Angeles—Southwest District Office, 3020 Pacific Coast Highway, Torrance 90505
Los Angeles—West District Office, 1494 S. Robertson Boulevard, Los Angeles 90035
Orange District Office, 421 N. Brookhurst Street, Anaheim 92801
San Bernardino District Office, 303 W. 3rd Street, Room 100, San Bernardino 92401
Pomona Branch Office, 553 N. Gibbs Avenue, Pomona 91767
Riverside Branch Office, 6848 Magnolia Avenue, Riverside 92506
San Diego District Office, 1350 Front Street, Room 4053, San Diego 92101
San Fernando Valley District Office, 6931 Van Nuys Boulevard, Van Nuys 91405

APPENDIX A

Glossary

GENERAL

The deaf—Those in whom the sense of hearing is nonfunctional for the ordinary purposes of life. This general group is made up of two distinct classes based entirely on the time of loss of hearing.

The congenitally deaf—Those who were born deaf.

The adventitiously deaf—Those who were born with normal hearing but in whom the sense of hearing became nonfunctional later through illness or accident.

Deafness—Severe or complete loss of hearing.

The hard of hearing—Those in whom the sense of hearing, although defective, is functional, with or without a hearing aid.

Hearing-impaired—Afflicted with malfunction of the auditory mechanism.

Oral method—The use of speech, speechreading and auditory training, and reading as sensory approaches in educating deaf children.

Postlingual deafness—Deafness that occurs after language has developed, usually after the age of three years.

Prelingual deafness—Deafness that occurs before language has developed, usually before the age of three years.

Rochester method—The use of speech, speechreading, auditory training, reading, and fingerspelling as sensory approaches in educating deaf children.

AUDIOLOGICAL

Acoustics—The science of sound, which includes sound production, transmission of sound, and the effects of sound on individuals.

Air conduction—The normal transmission of sounds on air to the eardrum.

Ambient noise—Extraneous sounds from the environment.

Audiogram—A graphic chart or record of the measurement of hearing for air conduction (AC) and bone conduction (BC). The vertical lines on the graph represent the frequencies, while the horizontal lines represent changes in intensity or loudness.

Audiologist—A specialist in the science of hearing who administers audiometric tests and contributes to the educational and rehabilitative needs of individuals.

Audiology—A specialized field which embraces the sciences relating to the study of individuals in terms of the normal and abnormal aspects of hearing.

Audiometer (pure tone)—An electronic instrument which produces accurately controllable frequencies and intensities of pure tones that are used to measure the ability to hear.

Auditory training—An educational method used to teach individuals with loss of hearing to take full advantage of the sound clues that are still available to them; usually used in conjunction with a hearing aid which provides the appropriate amplification of sound.

Bel—A unit for expressing the ratio of two values of power, the number of bels being the logarithm to the base 10 of the power ratio.

Binaural—Relating to or used by both ears.

Bone conduction—Transmission of sound waves to the hearing mechanism through the bones of the skull, bypassing the middle ear.

Conductive hearing loss—The type of hearing loss caused by a plugging of the external ear canal, restriction of the free movement of the eardrum, or restriction of the movement of the bones in the middle ear. (See *Perceptive or nerve impairment* in next section.)

Decibel (db)—A unit used to measure the relative loudness of sounds; 1 decibel is considered to be the faintest sound that can be heard by a normal hearing person; 140 decibels, a pressure 10 million times as great as 1 decibel, is considered to be the pain level in the normal ear. A decibel equals one-tenth of a bel.

Discrimination—Understanding or perceiving what is heard.

Free field testing—Testing in which either live voice or recorded voice or sounds are projected through a loudspeaker instead of through the headphones on the ears of the person being tested; used in a clinical setting to test children wearing hearing aids.

Frequency of sound—The number of cycles per second (cps) of a sound wave.

Hearing—The process of perceiving sound.

Hearing aid—An electronic device which amplifies sound. The receiver may be worn in the ear (air conduction aid) or on the mastoid bone area (bone conduction aid), depending upon the type of hearing loss.

Hearing level for speech—The difference in decibels between the speech levels at which the normal ear and a particular ear reach the same intelligibility.

Hearing threshold—The minimum intensity of a given tone which is perceptible 50 percent of the time to the individual being tested.

Intensity of sound—The property of sound which can be measured in decibels by physical means.

Localization—The ability to determine the source of a sound or the direction from which it has come.

Masking—The introduction of controlled sound through the audiometer to prevent an individual from hearing the test tone in the ear opposite the ear being tested.

Monaural—Relating to or used by one ear.

Noise–A scramble of many frequencies that may or may not stand in any simple numerical relation to one another.

PB word lists—Phonetically balanced groups of monosyllabic words such as *rise, bar, slip,* and the like, which are used for articulation tests.

Pain threshold—The upper limit of hearing at which sound becomes so intense that it is no longer heard but is felt as painful; the limit of tolerance.

Pure tone—A continuous sound of a single frequency; a tone not accompanied by overtones or other sounds. (An audiometer is calibrated to give out pure C tones at octaves from 125 through 8,000 cycles per second.)

Receiver, air conduction—An earphone which transforms electrical energy into sound waves.

Receiver, bone conduction—A magnetic receiver designed to vibrate its case against the mastoid bone instead of setting up sound waves in the air.

Recruitment—A sudden sensation of loudness. A patient with recruitment may barely hear a sound when it is slightly above threshold but hears the sound at full or normal loudness at levels 15 to 20 decibels above his threshold. The effect upon the individual is a sudden, and maybe severe, increase in sound pressure.

Screening—An audiometric testing technique to separate those whose thresholds lie above the normal from those whose thresholds lie at or below the normal threshold. Both speech and pure tones are used as test signals.

Speech reception threshold (SRT)—The intensity level at which a listener can correctly understand 50 percent of selected spondee words.

Spondee words—Familiar words of two syllables, with equal stress on each syllable.

Tolerance—The intensity at which sound becomes uncomfortable or painful.

MEDICAL

Cerumen—Wax secreted by a modified form of the sweat glands in the external auditory canal. When decomposed and an infection with fungi results, this is known as external otitis.

Electroencephalography (EEG)—A special test used by neurologists to determine through recordings of brain waves the possible existence of brain injury.

Eustachian tube—A canal lined by mucous membrane, with bony and cartilaginous support, connecting the pharynx with the middle ear.

External ear—The pinna and the external auditory meatus; the ear as seen externally.

Fenestration operation—An operation performed to create a new path for sound waves to enter the inner ear. A fenestra or window is made through the bony walls of the middle ear into the horizontal portion of the semicircular canal.

Inner ear—Membraneous and osseous labyrinths.

Labyrinth—A system of intercommunicating canals and cavities that make up the inner ear.

Mastoid—A bone-like process extending from the temporal bone downward behind the external ear.

Middle ear—The cavity containing the ossicles, the Eustachian tube, and the mastoid cells.

Mobilization of the stapes—Surgical treatment of otosclerosis, whereby the bony deposit at the footplate of the stapes is broken up sufficiently to permit the stapes to become mobile again.

Myringotomy—Incision of the eardrum.

Neurologist—A medical doctor whose specialty is the brain and the central nervous system.

Otololaryngologist—A medical doctor whose specialty is the general area of the ear, nose, and throat.

Otitis media—Generally an infection in the middle ear which has become suppurative or purulent.

Otologist—A medical doctor whose specialty is confined solely to hearing and the hearing mechanism.

Otosclerosis—A bony growth that occurs most commonly at the footplate of the stapes. The effect of this growth is a fixation of the footplate of the stapes in the oval window.

Perceptive or nerve impairment—The type of hearing loss resulting from pathology in the inner ear, and in the cranial nerve and its primary auditory nuclei. (See *Conductive hearing loss.*)

Round window—An opening in the bone between the middle ear and the inner ear. The stapes (third ossicle) of the middle ear is attached to a membrane that is stretched across the window.

Tinnitus—Sensations of sound in the absence of any external acoustic stimulation; i.e., head noises.

Tympanoplasty—Replacement of a damaged eardrum and bones of the middle ear by a skin graft which is intended to function as a new eardrum in transmitting sound to the inner ear.

Vertigo—A sensation of irregular or whirling motion in relation either to oneself or to external objects.

EDUCATIONAL

Expressive language—The ability to speak or write.

Inner language—The ability to structure all sensory input into some organized pattern of experience.

Receptive language—The ability to understand what is said or written.

Receptive speech—The ability to understand words through auditory clues.

Sense training—A teaching approach which helps the child develop senses of sight and touch, which development must precede, and prepare for, work in speechreading, reading readiness, and speech.

Speech correction—Further refining and correction of developed speech patterns.

Speech training—A teaching procedure which helps the deaf child learn to put his speech mechanism and musculature to use in developing speech patterns.

Speechreading—The ability to understand words through visual and tactual clues. (*Speechreading* is preferable to the term *lipreading*.)

APPENDIX B

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